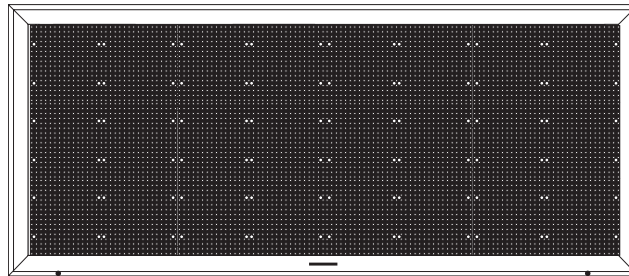


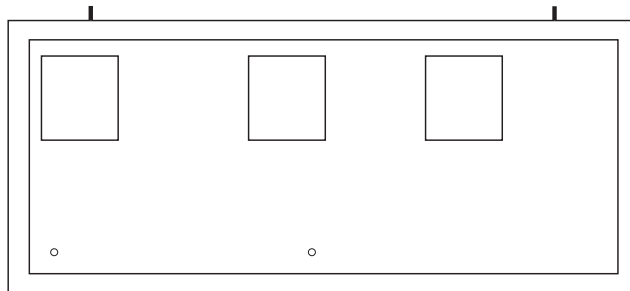
AlphaEclipse™ 2500/2600 Series Sign Installation Manual

Go to <http://www.adaptivedisplays.com/support/eclipse> for the latest information.



For sign dimensions, see
Figure 14 on page 45.

For sign DIP switch
settings, see page 70.



To connect . . .	Read . . .
One sign	"Computer-to-sign connection methods" on page 17
Two signs ("back-to-back")	"Computer-to-sign connection methods" on page 17 and "Sign-to-sign connection methods" on page 23
Three or more signs	"Computer-to-sign connection methods" on page 17 and "Sign-to-sign connection methods" on page 23

Manual part number: 9711-7001

Revision date: 5/13/2002

ADAPTIVE®

NOTE: Due to continuing product innovation, specifications in this manual are subject to change without notice.

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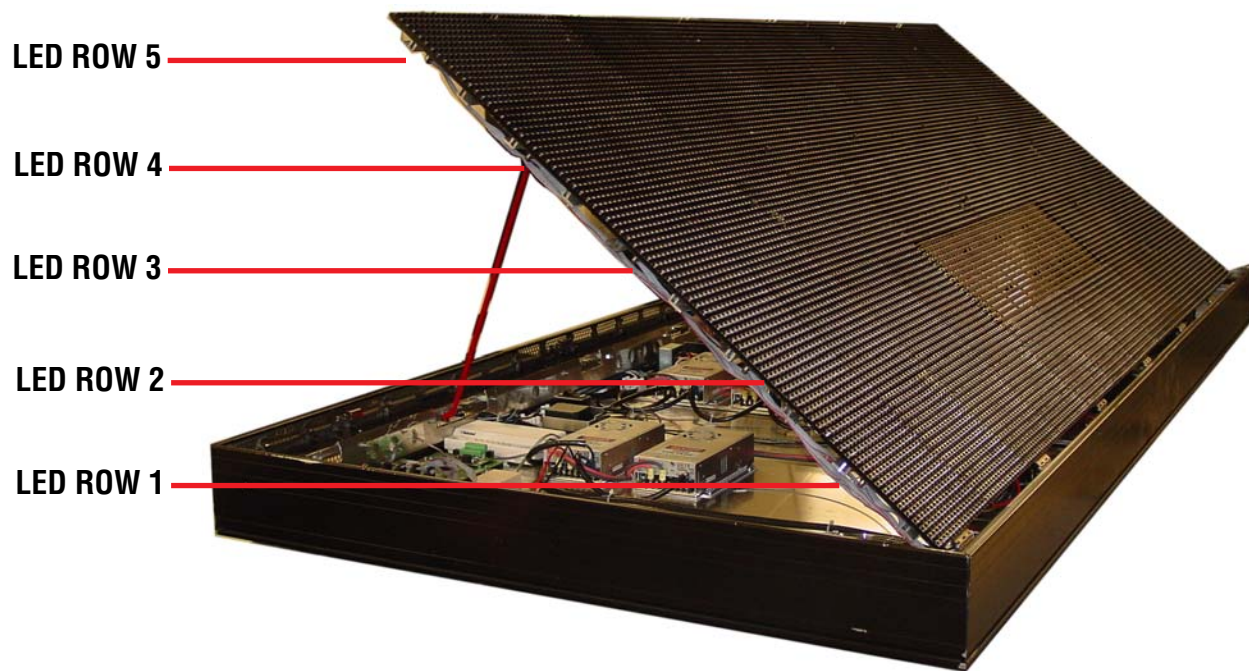
The distinctive trade dress of this product is a trademark claimed by Adaptive Micro Systems, Inc.

NOTES

How LED rows are numbered in this manual

LED board rows (or “lines”) are numbered as if the sign was open and you were looking at the *backs* of the LED boards.

Below is an example of how the LED board rows in a 5-line sign would be numbered:



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1 — Introduction

Purpose

This manual is intended as a guide for sign installers.

Revision history

Table 1: Revision history

Revision	Date	Notes
9711-7001	4/23/2002	First review release
9711-7001	5/7/2002	Second review release
9711-7001	5/13/2002	First release

Related documentation

Technical documentation can be found at Adaptive's web site: <http://www.adaptivedisplays.com>.

Table 2: Related documentation

Part #	Manual title	Description
9708-8081F	AlphaNET™ version 2.2 User Manual	Describes the software used to send messages to an AlphaEclipse™ sign
9700-0112	Networking Alpha® Signs	Detailed examples on how to network Alpha® signs.

Controlling electrostatic discharge (ESD)



This equipment signs contain components that may be damaged by “static electricity”, or electrostatic discharge. To prevent this from happening, be sure to follow the guidelines in Adaptive Tech Memo 00-0005, “*Guidelines for Controlling Electrostatic Discharge Damage*”, available at our web site at <http://www.adaptivedisplays.com>.

Safety information

Equipment symbols



Chassis ground



Mains power (I = ON, O = OFF)

Warnings and cautions

⚠ WARNING	
	Hazardous voltage. Contact with high voltage may cause death or serious injury. Always disconnect power to unit prior to servicing.

Battery backup

In the event of a power loss, backup batteries in an AlphaEclipse™ sign provide short-term power in order to retain information such as messages and time settings.

Backup batteries are soldered to the Controller board and should not be replaced by anyone other than a qualified Adaptive® technician.

⚠ WARNING	
	Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

⚠ AVERTISSEMENT	
	Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type recommandé par le fabricant. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

⚠ ADVERTENCIA	
	Existe el peligro de explosión si la batería se reemplaza incorrectamente. Reemplácela sólo con el mismo tipo de batería o uno equivalente recomendado por el fabricante. Deseche las baterías usadas de acuerdo con las instrucciones del fabricante.

⚠ AVVERTENZA	
	La sostituzione errata della batteria può comportare il pericolo di esplosione. Sostituire unicamente con una batteria identica o di tipo equivalente consigliata dal fabbricante. Eliminare le batterie scariche in base alle istruzioni del fabbricante.

⚠ WARNUNG	
	Bei einem nicht vorschriftsgemäßen Austausch der Batterie besteht Explosionsgefahr. Nur durch eine Batterie des gleichen oder eines gleichwertigen, vom Hersteller empfohlenen Typs ersetzen. Gebrauchte Batterien gemäß Herstelleranweisung entsorgen.

2 — Equipment overview

Overview

The AlphaEclipse™ 2500/2600 series signs are one- to five-line outdoor LED signs that can be used to display text or graphic messages. These messages can be displayed on an AlphaEclipse™ sign using the following methods:

- From a computer connected directly to an AlphaEclipse™ sign using wire or fiber optic cable
- From a computer connected to a wireless transmitter to a wireless receiver inside an AlphaEclipse™ sign
- From a computer connected to a transmitting modem to a receiving modem inside an AlphaEclipse™ sign

Anatomy of an AlphaEclipse™ sign

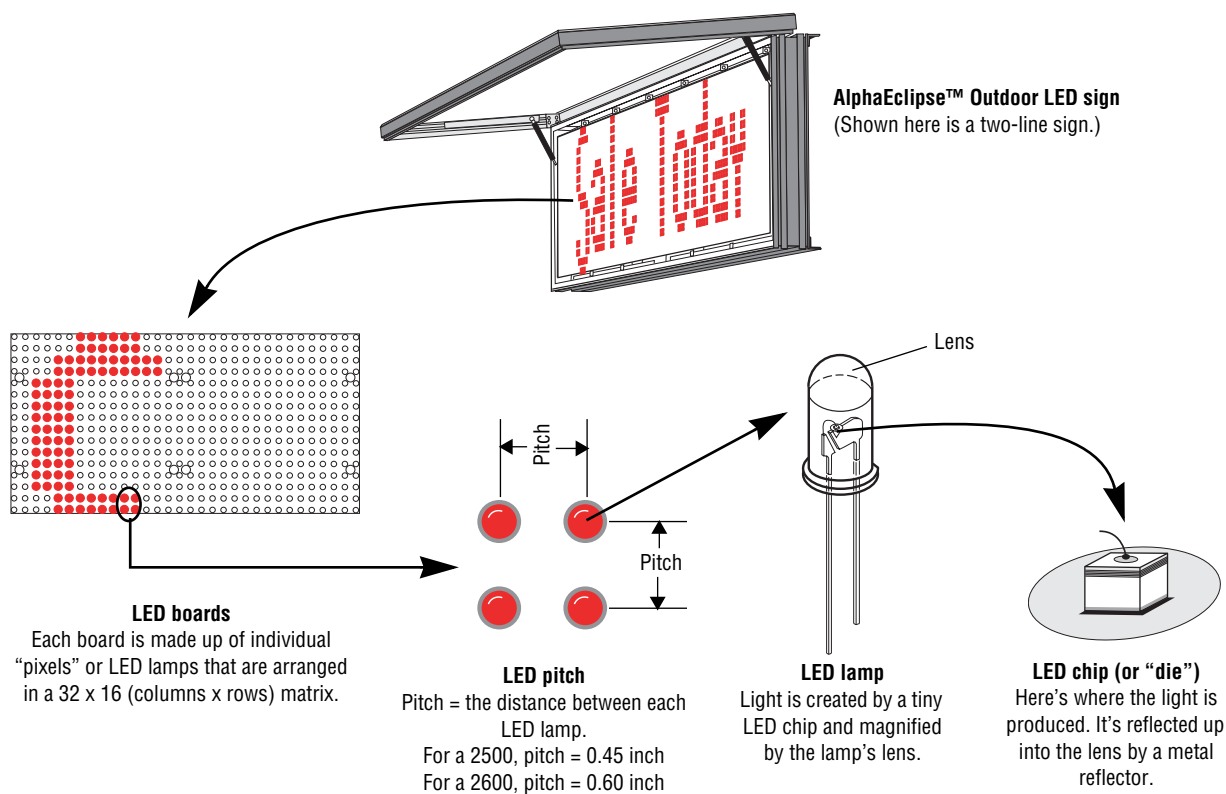


Figure 1: Anatomy of an AlphaEclipse™ 2500/2600 sign

Description

Outside view

Table 3: Outside view of AlphaEclipse™ sign

Shown below is a 3-line sign (128 x 48 LED matrix). Other sign sizes are similar.

The diagram illustrates the external components of the AlphaEclipse sign. The **Front view** shows the sign's face with a grid of LEDs, labeled with **G** for the sign door and **H** for the LED lens cover. The **Back view** shows the rear of the sign with three square fan covers labeled **D**, two locking latches labeled **E**, and a door handle labeled **F**. It also shows the power conduit opening labeled **A** and the signal conduit opening labeled **B**. The **Side view** shows the profile of the sign with lifting eyebolts labeled **C** and mounting brackets labeled **I**.

Item	Name	Description
A	Power conduit opening	Access for electrical power. Must be sealed with weather-proof conduit during installation.
B	Signal conduit opening	Access for RS232/RS485 communication signals and for wireless transceiver option. Must be sealed with weather-proof conduit during installation.
C	Lifting eyebolt	Used to lift the sign. These should NOT be used to mount the sign.
D	Fan covers	Weather-resistant louvers allow air movement through the sign
E	Locking latches	Locks the sign door closed. Requires 5/32-inch hex key tool to open.
F	Door handle	Used to open the sign door.
G	Sign door	Opens for access to internal sign components. Metal safety bars hold the door open. The door can be removed from its hinges.
H	LED lens cover	Polycarbonate lens cover in the sign door
I	Mounting brackets	Used to attach sign to mounting structure.

Inside view**Table 4: Inside view of an AlphaEclipse™ sign**

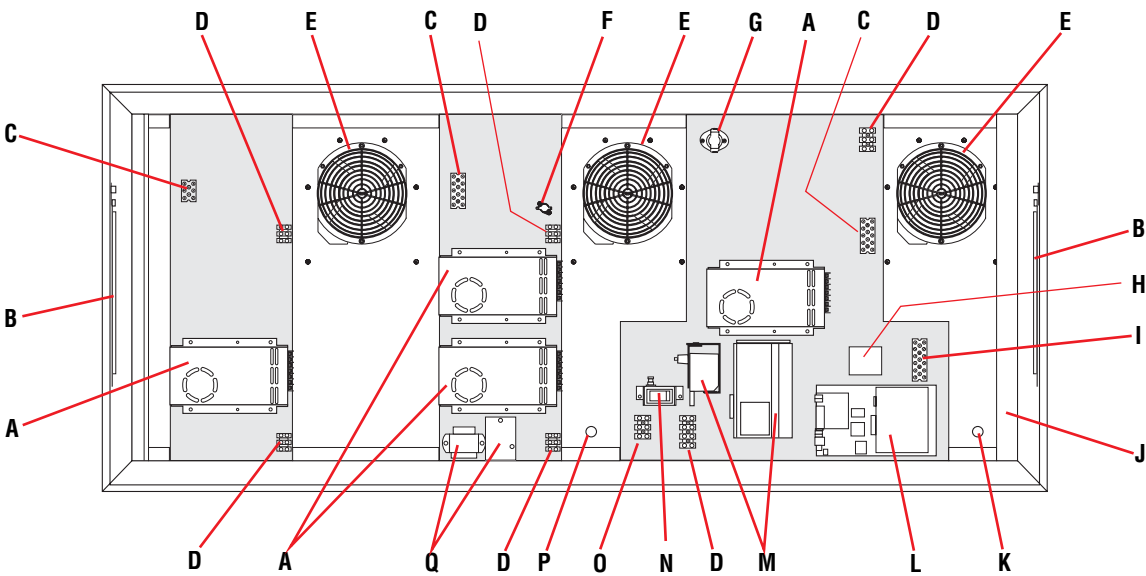
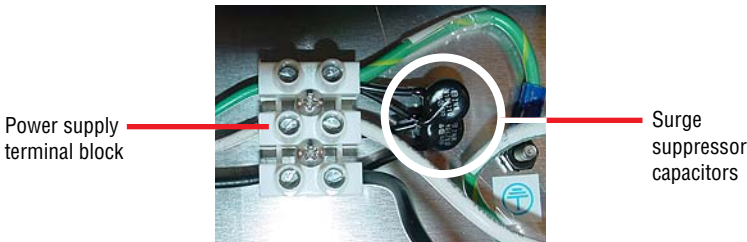
Shown below is a 3-line sign (128 x 48 LED matrix). Other sign sizes are similar.		
		
Item	Name	Description
A	5-volt power supply	Provides power to the LED and the Controller boards
B	Safety bar	Keeps sign door from closing when the sign door is raised.
C	5-volt distribution terminal	Distributes 5-volt power to LED boards.
D	120/240-volt distribution terminal	Distributes 120/240-volt power to the fans and power supplies.
E	Exhaust fan, 55 CFM, 120V	For 1-LED row sign
	Exhaust fan, 55 CFM, 240V	
	Exhaust fan, 110 CFM, 120V	For 2-LED rows sign
	Exhaust fan, 110 CFM, 240V	
	Exhaust fan, 170 CFM, 120V	For 3-LED rows sign
	Exhaust fan, 170 CFM, 240V	
	Exhaust fan, 220 CFM, 120V	For 4- and 5-LED rows sign
	Exhaust fan, 220 CFM, 240V	
F	Exhaust fan thermostat	Turns on exhaust fans when the temperature inside of unit is at or above 30°C (85°F). The location of this thermistor varies on the size of the sign.
G	Sign shutdown thermostat	Shuts down the sign when the temperature inside of the unit exceeds 82°C (180°F). During shutdown, only the sign's fan will operate.
H	Telephone service hookup (part of modem option)	Used to connect a 4-wire telephone line to a modem.

Table 4: Inside view of an AlphaEclipse™ sign

I	Signal I/O terminal block	Used to connect an RS232 or RS485 network to the sign: 
J	Photocell	Used to dim the sign's LEDs.
K	Signal conduit opening	Access for RS232/RS485 communication signals and the wireless transceiver option. Must be sealed with weather-proof conduit during installation.
L	Controller board	Controls sign operation
	Turbo Extender board	Plugs into the Controller board and sends data to the sign's LED boards. The Turbo Extender board has two terminal-type connectors: • TEMP PORT for the temperature probe and • SYNC PORT which is used is RS485 Master/Slave sign networks
M	Modem kit, 120V (option)	Allows sending messages to sign via a modem (option)
	Modem kit, 240V (option)	
	Transceiver kit, 120V (option)	Allows sending messages to sign via wireless transmitter (option)
	Transceiver kit, 240V (option)	
N	Power switch	Used to disconnect sign from power source. An intermittent switch on this assembly allows exhaust fans to be turned in order to test their operation.
O	Power supply terminal block	Used to connect the sign to an appropriate power supply. Two surge suppressor capacitors (circled below) are used per sign. 
P	Power conduit opening	Access for electrical power. Must be sealed with weather-proof conduit during installation.
Q	240V modem transformer and fuses (option)	Used as part of the 240V modem option.

Equipment identification

Table 5: Equipment identification

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE. (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION. This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la class A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada. CERTIFIED TO CSA STD. C22.2 No. 60950-00-CAN/CSA CONFORMS TO UL STD. No. 60950 3RD EDITION TYPE 3R ENCLOSURE 65801 THE DISTINCTIVE TRADE DRESS OF THIS PRODUCT IS A TRADEMARK OF ADAPTIVE MICRO SYSTEMS, INC. ADAPTIVE Adaptive Micro Systems Inc Milwaukee, Wisconsin 53224 USA MODEL NO: 2500 — 192X80R SERIES: A VOLTS: 120/240 VAC ~ Hz: 50/60 Hz AMPS: 14.88 A DATE OF MANUFACTURE: 5/1/2002 SERIAL NO: EF0002208 ⚠ PARTS SERVICEABLE BY TRAINED TECHNICIANS ONLY! DISCONNECT POWER BEFORE SERVICING		
Item	Name	Description
A	Model number	2500 — 192X80A LED lamp color: • A = Amber • R = Red Width (pixel columns) Height (pixel rows) LED lamp viewing angle: • 00 = 30 degree • 01 = 70 degree LED pitch: • 25 = 0.45-inch pitch • 26 = 0.60-inch pitch
B	Series letter	Used to differentiate sign versions
C	Electrical information	Input voltage, frequency, and amperage
D	Date of manufacture	Month, day, and year the sign was made
E	Serial number	Consecutive, unique identification number

EMI compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with installation guidelines, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Temperature protection

In order to protect itself from damage, a sign will automatically turn on its exhaust fans and dim or turn off its LEDs when the sign reaches a predetermined internal temperature.

Table 6: Temperature protection

	Internal sign temperature				
	< 30°C (85°F)	30° - 49°C (85° - 120°F)	50° - 70°C (122° - 158°F)	71° - 81°C (160° - 178°F)	82°C or greater (180°F)
LEDs:	Normal		Dim ¹	Off ²	Off ³
Controller board:	Normal				Off
Exhaust fans: ⁴	Off	On			

NOTES:

¹ Between 50° - 60°C (122° - 140°F), LED brightness can decrease to 62.5% of normal.
Between 60° - 65°C (140° - 149°F), LED brightness can decrease to 50% of normal.
Between 65° - 70°C (149° - 158°F), LED brightness can decrease to 37.5% of normal.

² When the LEDs are turned off because the sign is too hot, two LEDs in the left most corner will remain on to indicate a thermal shutdown.

³ All LEDs will be off.

⁴ At or above 30° C (85° F), the exhaust fans are switched on by the exhaust fan thermostat. If the temperature drops to 20° C (67° F), then the exhaust fans are turned off.

3 — Networking signs

NOTE: Sign networks that use fiber optic cable should only be installed by a qualified fiber optic technician.

Overview

In order to display messages on an AlphaEclipse™ sign, a sign must be connected to a computer that has sign messaging software, like AlphaNET software, installed.

Computer-to-sign communication methods

There are a number of ways to connect one or more AlphaEclipse™ signs *to a computer*:

- Wired (RS232, RS485, and fiber optic)
- Modem
- Wireless

Table 7: Computer-to-sign communication methods

Distance from computer to sign (feet)	Indoor use					Outdoor use				
	Networking method									
	Wired			Modem ¹	Wireless ^{1,2}	Wired			Modem ¹	Wireless ^{1,3}
	RS232	RS485	Fiber optic			RS232	RS485	Fiber optic		
up to 50	Yes	Yes	Yes ⁴	Yes	Yes	Yes	Yes	Yes ⁴	Yes	Yes
50 to 1000	No	Yes	Yes ⁴	Yes	Yes	No	Yes	Yes ⁴	Yes	Yes
1000 - 4000	No	Yes	Yes ⁴	Yes	Yes	No	Yes	Yes ⁴	Yes	Yes
4000+	No	No	Yes ⁴	Yes	No	No	No	Yes ⁴	Yes	Yes

NOTES:

¹ Installed and configured at the factory.

² Maximum indoor range of a Locus OS2400-232 wireless transceiver is about 1500 feet. Actual operating range depends on local environment, including obstructions and electrical interference.

³ Maximum outdoor range of a Locus OS2400-232 wireless transceiver is about 10,000 feet (about 2 miles). Actual operating range depends on local environment, including obstructions and electrical interference.

⁴For a fiber optic data connection, the maximum distance between the sign and computer is 2 miles (~10,000 feet).

NOTE: Another option for connecting a computer to a sign is through an external connection box. See “External connection box” on page 42.

Sign-to-sign communication methods

Also, there are several ways to *interconnect* two or more AlphaEclipse™ signs together:

- Wired (RS485)
- Modem
- Wireless

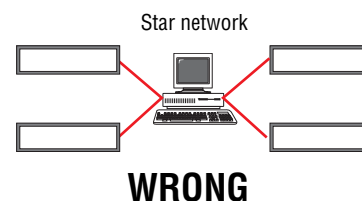
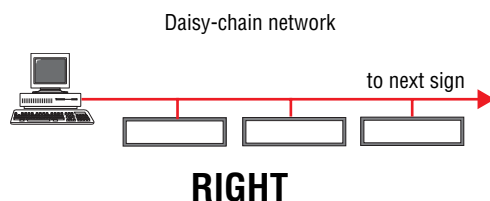
Table 8: Sign-to-sign communication methods

Networking method		Description
Wired	Master/Master	Signs connected this way can each display a unique message. One of the signs must be connected to a PC which is used to create and send messages (see “Computer-to-sign communication methods” on page 15).
	Master/Slave	Signs connected this way display the same message at the same time. This is called <i>simultaneous messaging</i> and is often used when signs are mounted back-to-back. The Master sign must be connected to a PC. The PC is used to create and send messages (see “Computer-to-sign communication methods” on page 15).
Modem (option)		Each sign must be equipped with the internal receiving modem which requires a dedicated telephone line per sign. Messages are sent to the sign from a PC that is connected to a transmitting modem.
Wireless (option)		Each sign must be equipped with an internal wireless transceiver. Messages are sent to the sign from a PC that is connected to a wireless transceiver.

NOTE: An AlphaEclipse™ sign’s connection to a computer or to other signs must be properly “terminated” in order for the sign to operate. See “Termination” on page 41 for more information.

Sign network design

- Signs that are networked using RS485 should be “daisy chained” or connected one sign after the other. “Star” type network connections should not be used.



- In multi-sign networks, set a unique serial address for each sign. *However, don't use serial address 0.* For example, set the serial address = 1 for the first sign, set the serial address = 2 for the second sign, and so on. See “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71.

Computer-to-sign connection methods

There are six ways to connect a computer to a sign (see Table 7 on page 15):

- RS232 (see below) — The computer is connected to the sign using RS232 wire.
- RS485 (see page 18) — The computer is connected to the sign using RS485 wire.
- Fiber optic (see page 19) — The computer is connected to the sign using fiber optic “mini-modems” and fiber optic cable.
- Ethernet/RS485 (see page 19) — The computer is connected to an Ethernet network. However, the sign *cannot connect directly* to the computer’s Ethernet LAN. Instead, RS485 wiring is run from the sign to an Ethernet/RS485 interface, the Lantronix MSS485.
- Modem (see page 21) — The computer is connected to a *transmitting* modem which sends messages to a *receiving* modem that is inside the sign
- Wireless (see page 22) — The computer is connected to a wireless transceiver which sends messages to a wireless transceiver inside the sign.

RS232 computer-to-sign connection

An RS232 wired connection to a sign only allows up to a 50-foot distance between the computer and the sign:

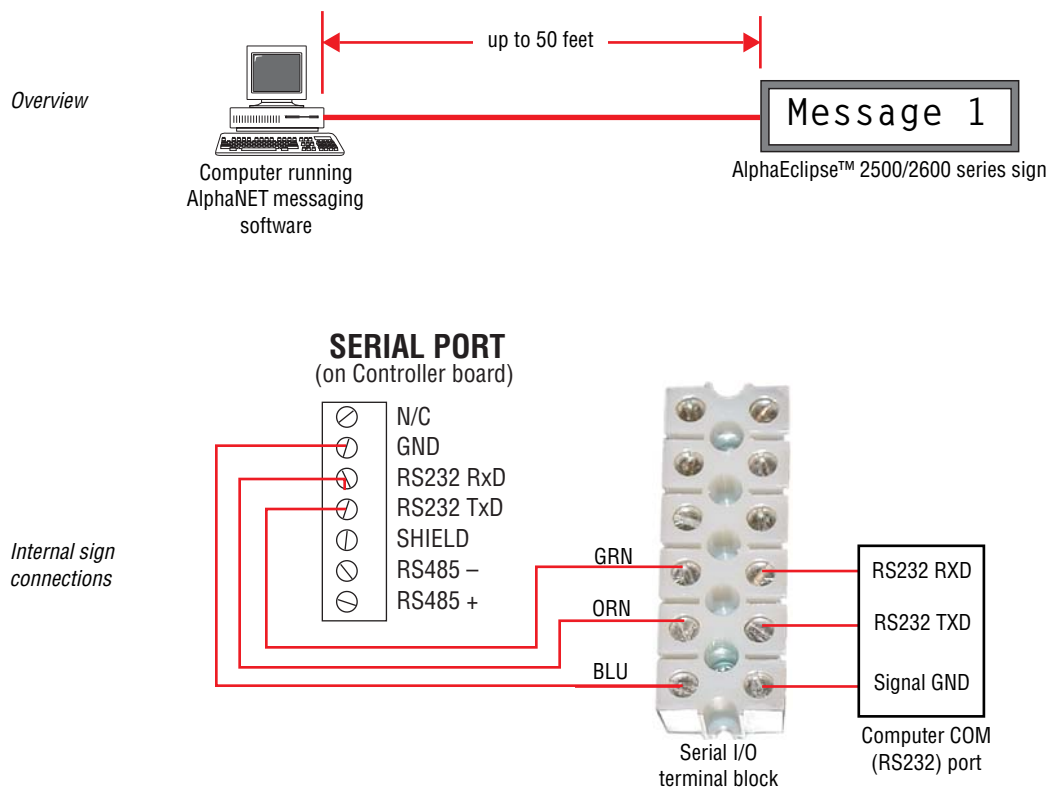


Figure 2: Wired RS232 computer-to-sign connection

RS485 computer-to-sign connection

This is a cost-effective method of connecting a computer to a sign.

NOTE: AlphaEclipse™ signs that are connected using RS485 must be properly “terminated” in order for the sign to operate. See “Termination” on page 41 for more information.

NOTE: The Converter Box III cannot be located outdoors.

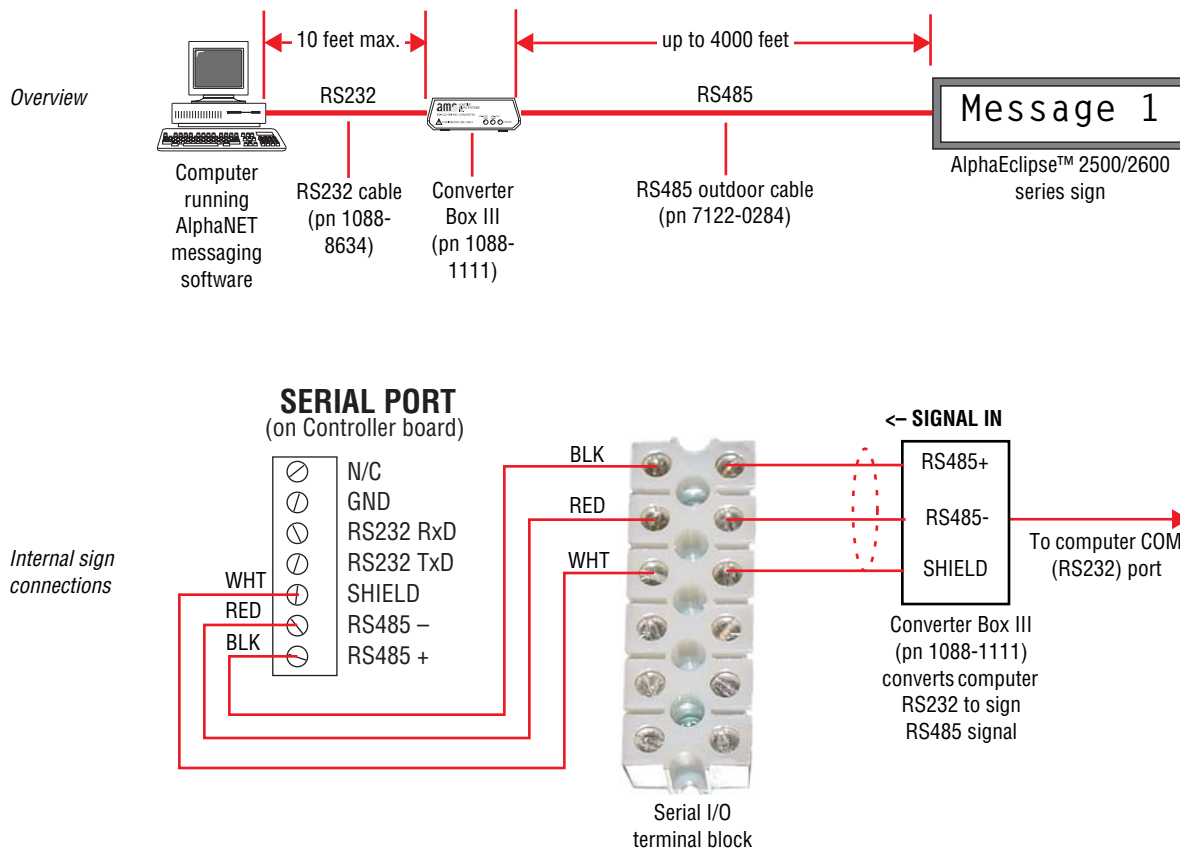


Figure 3: RS485 computer-to-sign connection

Fiber optic computer-to-sign connection

NOTE: Sign networks that use fiber optic cable should only be installed by a qualified fiber optic technician.

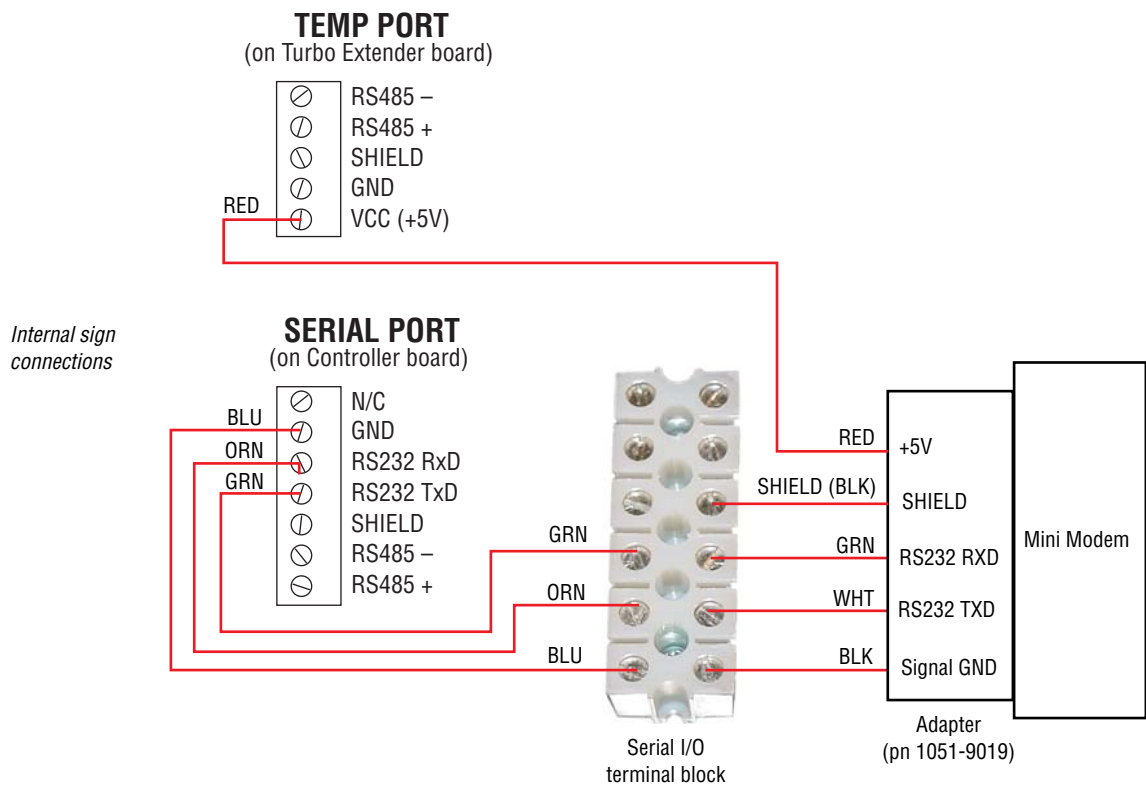
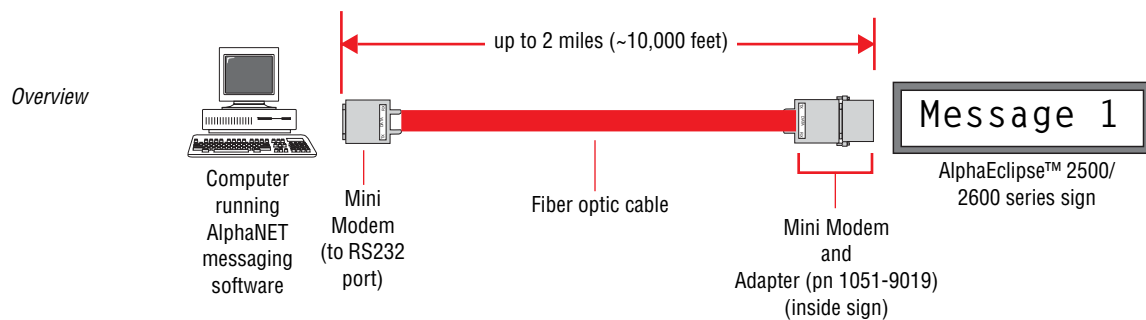


Figure 4: Fiber optic RS232 computer-to-sign connection

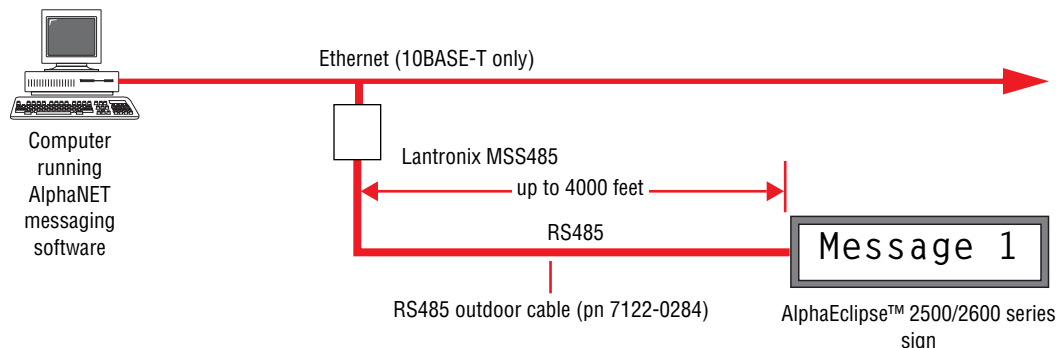
Ethernet/RS485 computer-to-sign connection

This method allows a sign to connect to an Ethernet LAN. The computer that will send messages to the sign can be *anywhere* on this LAN. This allows great flexibility because the sign does not have to connect near the messaging computer and an existing Ethernet LAN can be used.

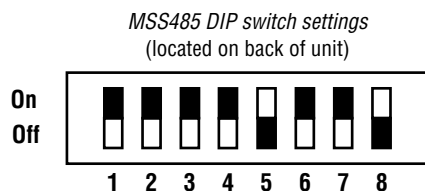
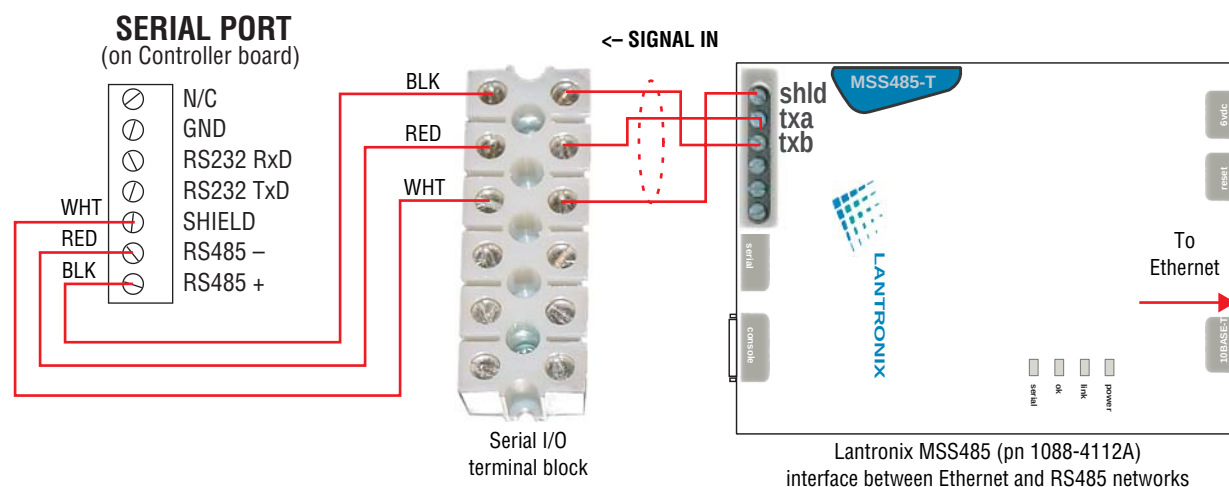
NOTE: AlphaEclipse™ signs that are connected using RS485 must be properly “terminated” in order for the sign to operate. See “Termination” on page 41 for more information.

NOTE: The Lantronix MSS485 cannot be located outdoors.

Overview



Internal sign connections



Switch(es)	Setting	Meaning
1, 2, 3	On / On / On	2-wire RS485
4, 5	On/Off	2-wire RS485 termination
6, 7	On / On	RX biasing
8	Off	Float shield

Figure 5: Ethernet/RS485 computer-to-sign connection

Modem computer-to-sign connection

A modem is typically used when a direct wired connection to a sign is not possible or practical. The receiving modem inside the sign must be connected to a dedicated phone line.

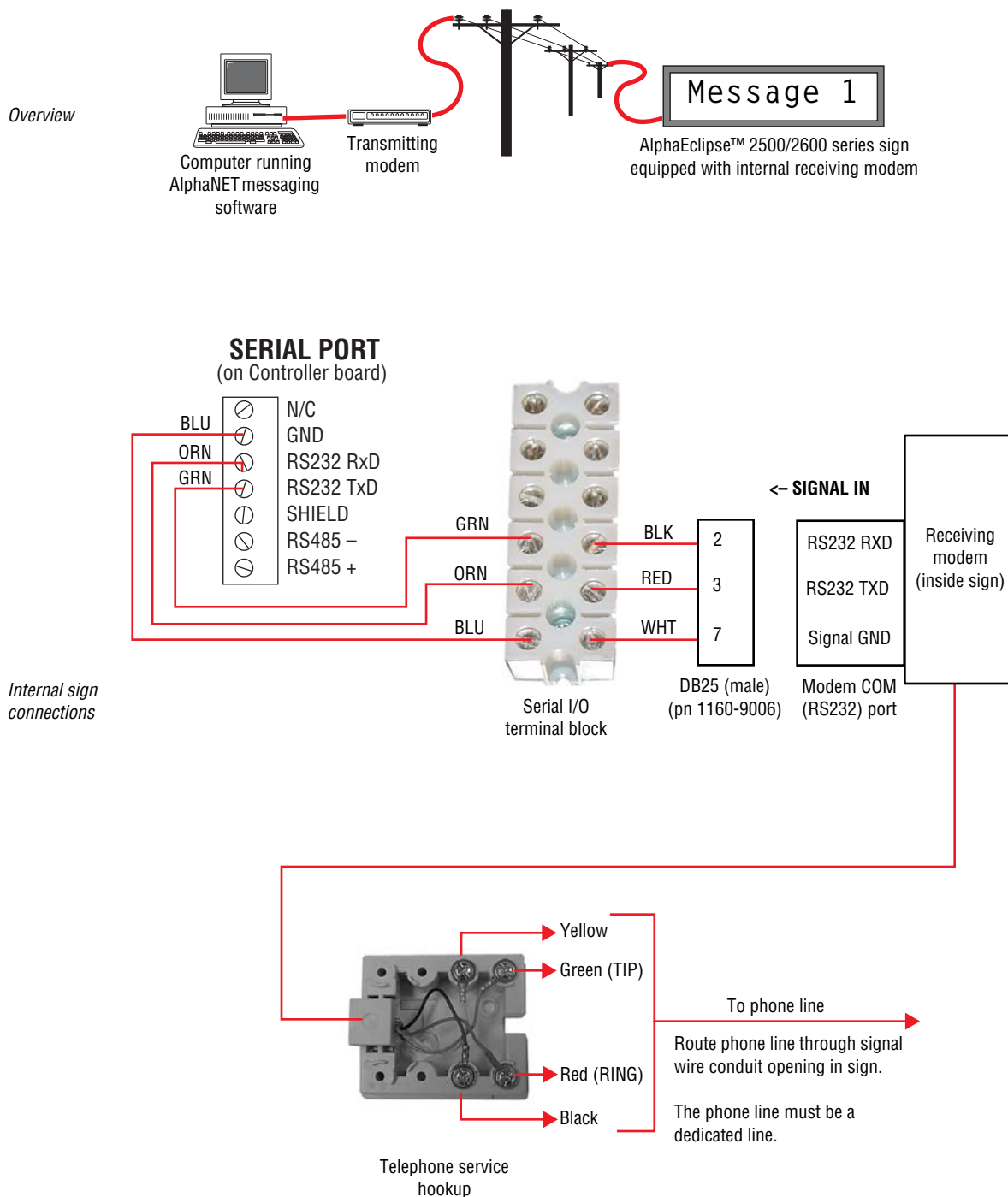


Figure 6: Modem computer-to-sign connection

Wireless computer-to-sign connection

Similar to a modem connection in which a direct wired connection to a sign is not possible or practical. Unlike a modem, a wireless connection does not require a dedicated phone line to a sign. However, a wireless connection may require extra work in order to create a dependable signal between the computer's and the sign's wireless transceivers.

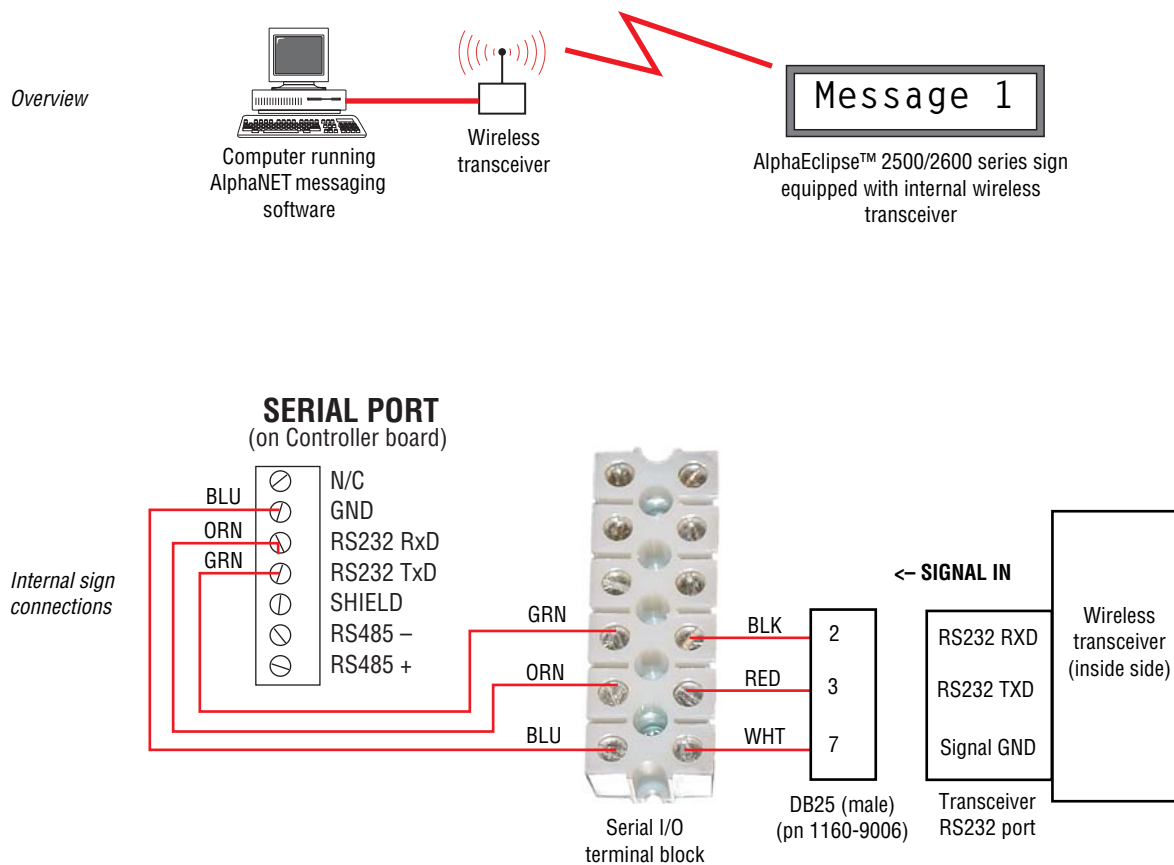


Figure 7: Wireless computer-to-sign connection

Sign-to-sign connection methods

Two or more signs can be networked together using one of two basic methods:

- Master/Master (see below) — Signs connected this way can display messages independently of each other. That is, at any given time, a different message can appear on each sign.
- Master/Slave (see page 32) — In this setup, the same message appears *simultaneously* on *all* the signs. The sign connected to the computer is called the Master sign. Messages from the Master sign are displayed on all the Slave signs.

NOTE: In order to keep messages displayed on Master/Slave signs synchronized, all the signs must be powered on at the same time or the Master sign must be powered on last.

Master/Master sign-to-sign connection methods

Signs connected this way can display messages independently of each other. That is, at any given time, a different message can appear on each sign. There are two types of Master/Master sign networks:

- Back-to-back sign Master/Master network — This is a special case of a multiple sign network involving just two signs. Messages from a computer are sent to these signs using either RS232 (see page 24) or RS485 (see page 26).

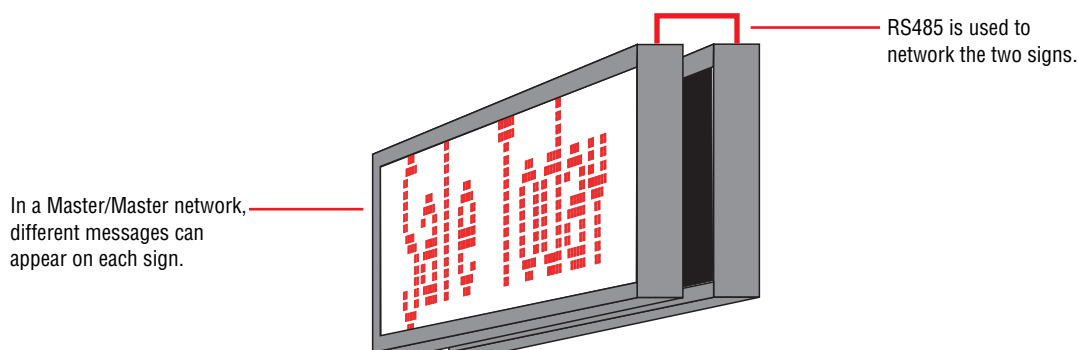


Figure 8: Back-to-back sign Master/Master network

- Multiple sign Master/Master network — This involves two or more signs connected together using RS485. Messages from a computer are sent to these signs using either RS232 (see page 28) or RS485 (see page 30).

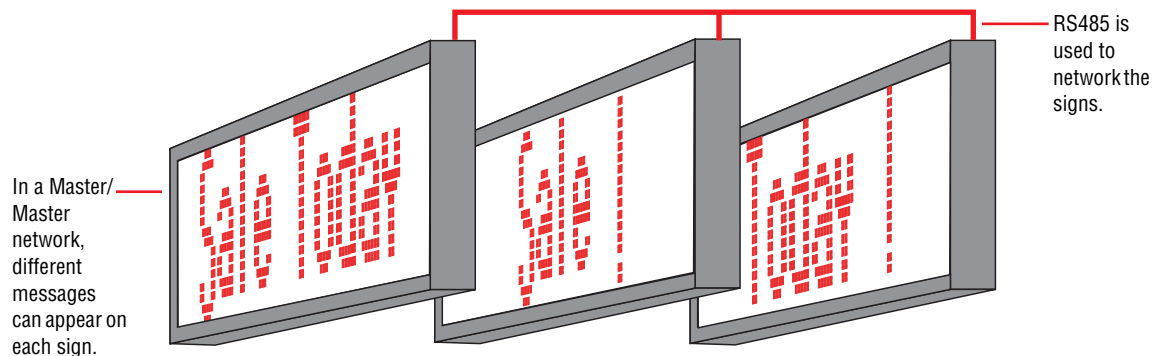


Figure 9: Multiple sign Master/Master network

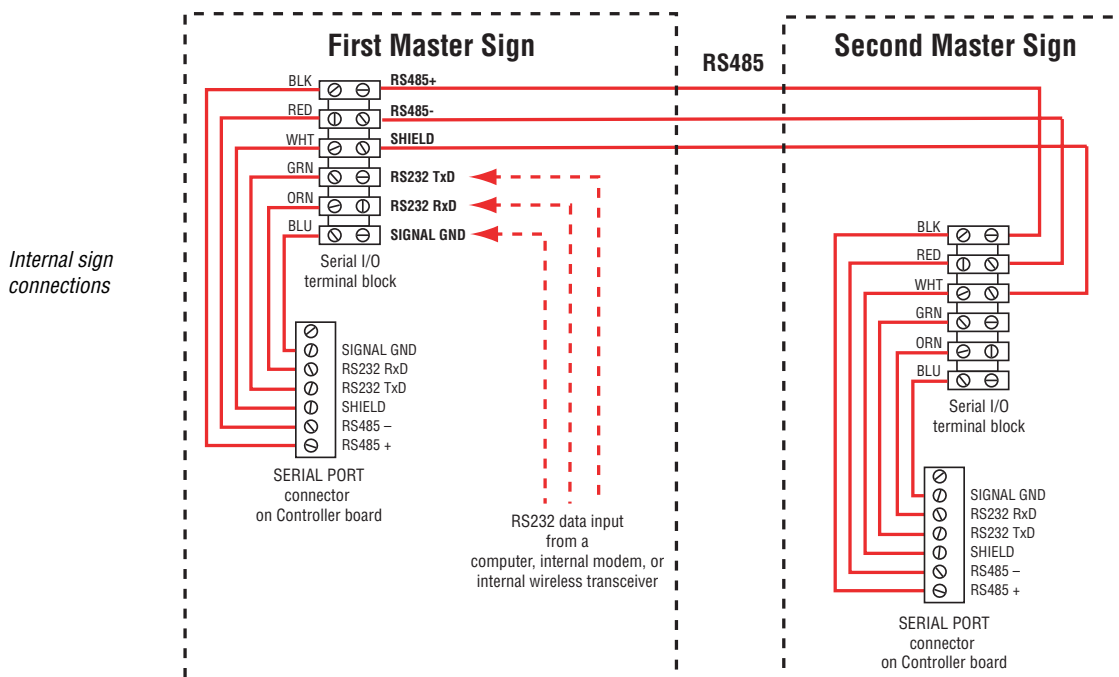
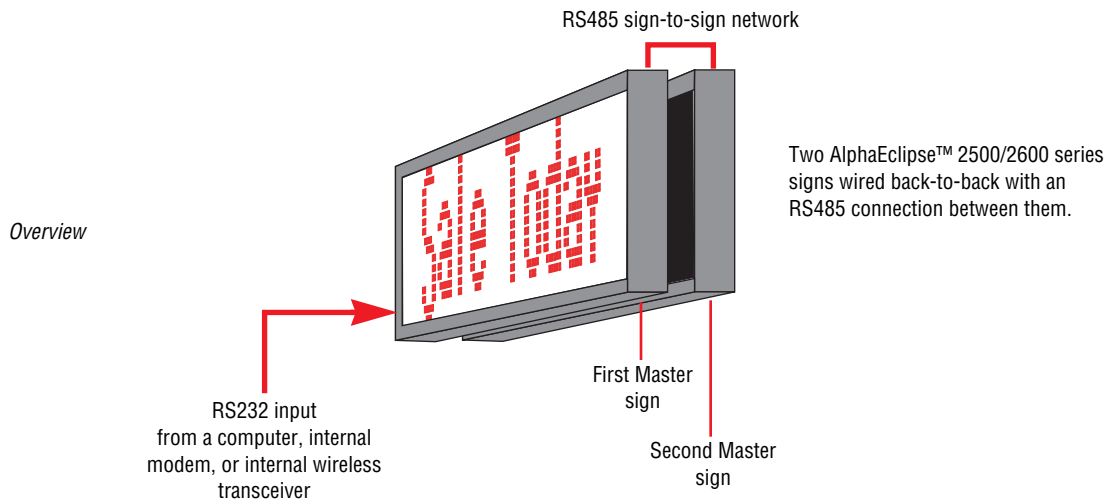
BACK-TO-BACK SIGN MASTER/MASTER NETWORK (WITH RS232 INPUT)

This is a common sign configuration — the backs of two signs are attached to each other and an RS485 sign-to-sign network connects the two signs.

Using the Master/Master sign-to-sign connection method, a *different* message can be displayed on *each* of these two signs.

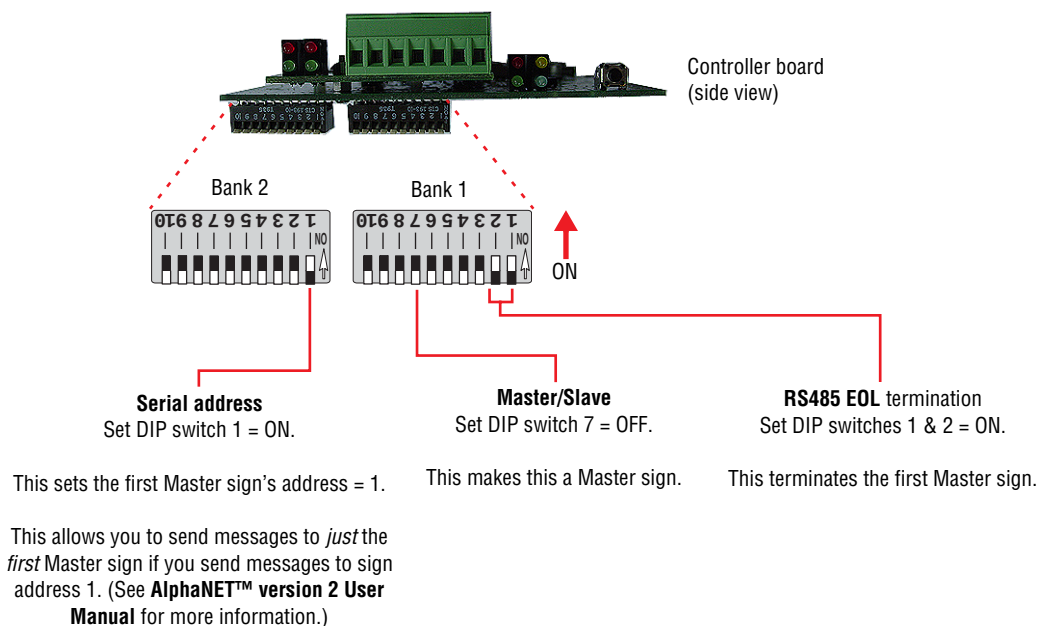
In this configuration, messages are sent to both of the signs using a single RS232 input:

NOTE: It is possible to put a modem or a wireless transceiver in *each* sign. In this case, a RS485 connection between the signs would not be necessary because each sign would have its own RS232 input. Also, if a modem or a wireless transceiver were used in *each* sign, RS485 EOL termination should be off in each sign.

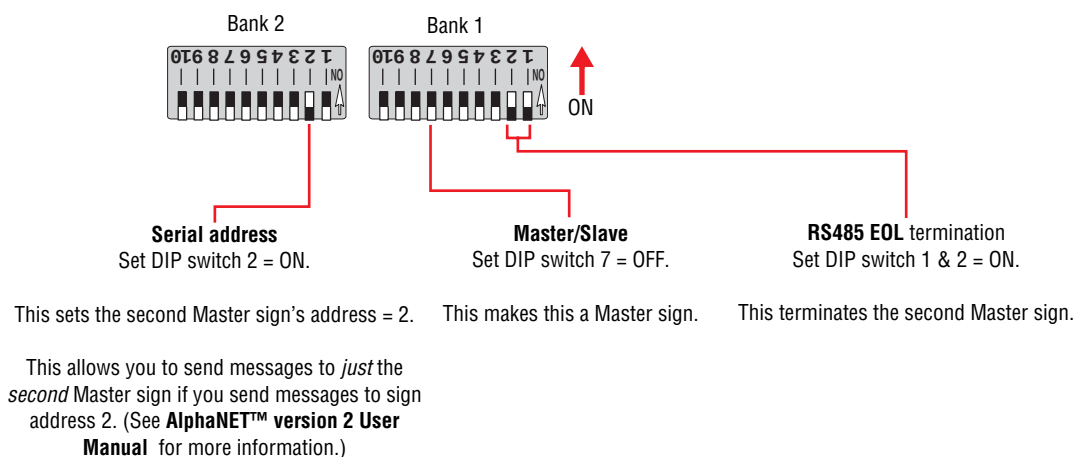


These are the recommended DIP switch settings for Master/Master back-to-back with RS232 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

- **First Master sign DIP switch settings:**



- **Second Master sign DIP switch settings:**

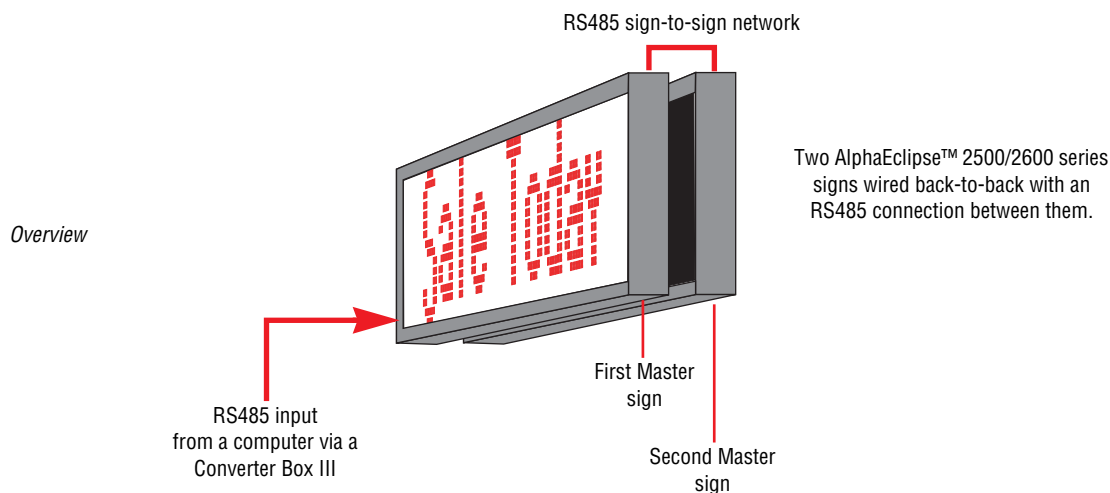


BACK-TO-BACK SIGN MASTER/MASTER NETWORK (WITH RS485 INPUT)

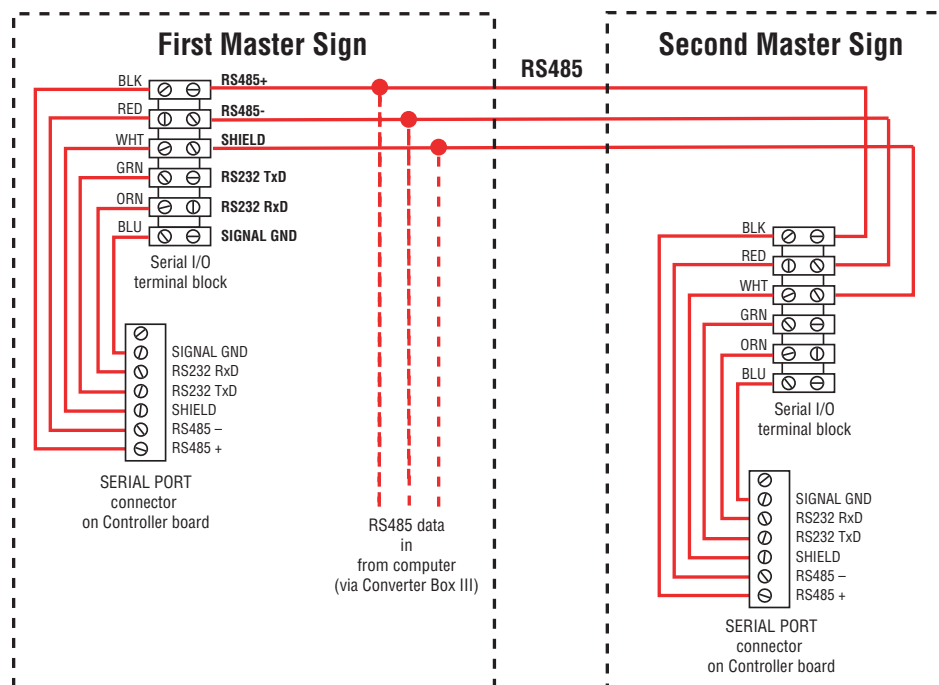
This is a common sign configuration — the backs of two signs are attached to each other and an RS485 sign-to-sign network connects the two signs.

Using the Master/Master sign-to-sign connection method, a *different* message can be displayed on *each* of these two signs.

In this configuration, messages are sent the signs using a RS485 connection.

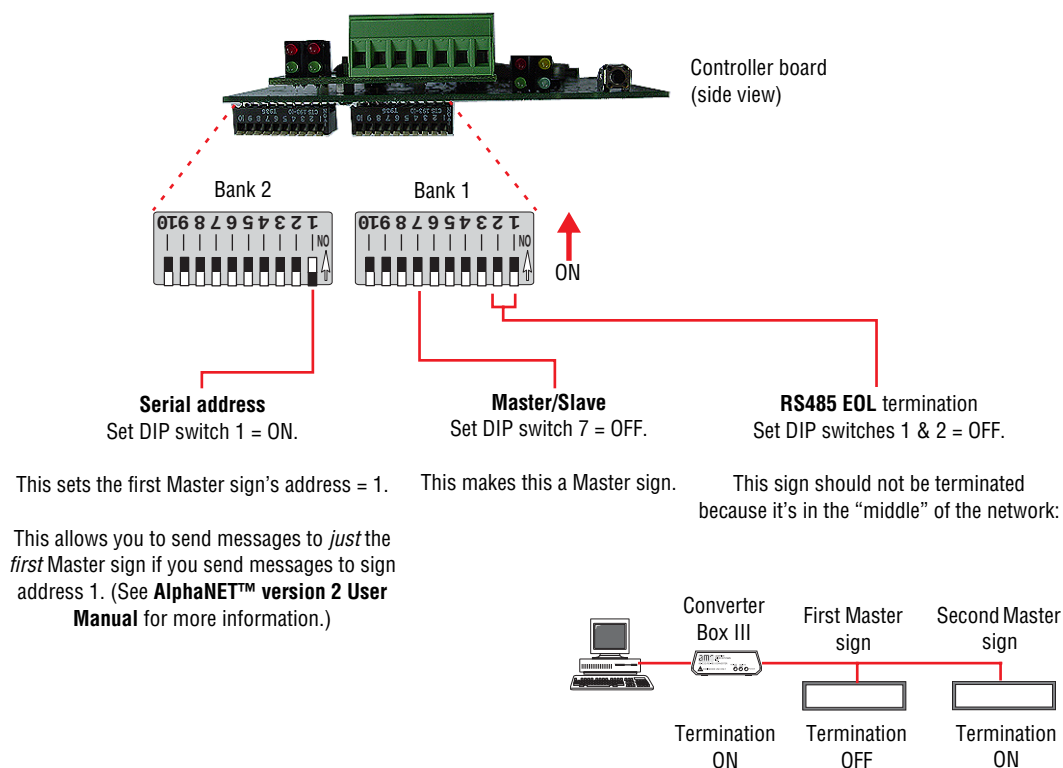


Internal sign connections

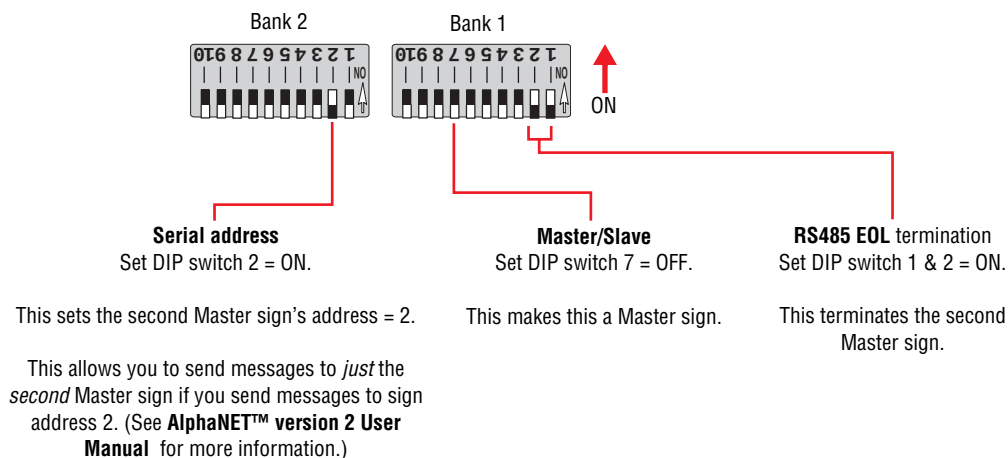


These are the recommended DIP switch settings for Master/Master back-to-back with RS485 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

- **First Master sign DIP switch settings:**



- **Second Master sign DIP switch settings:**



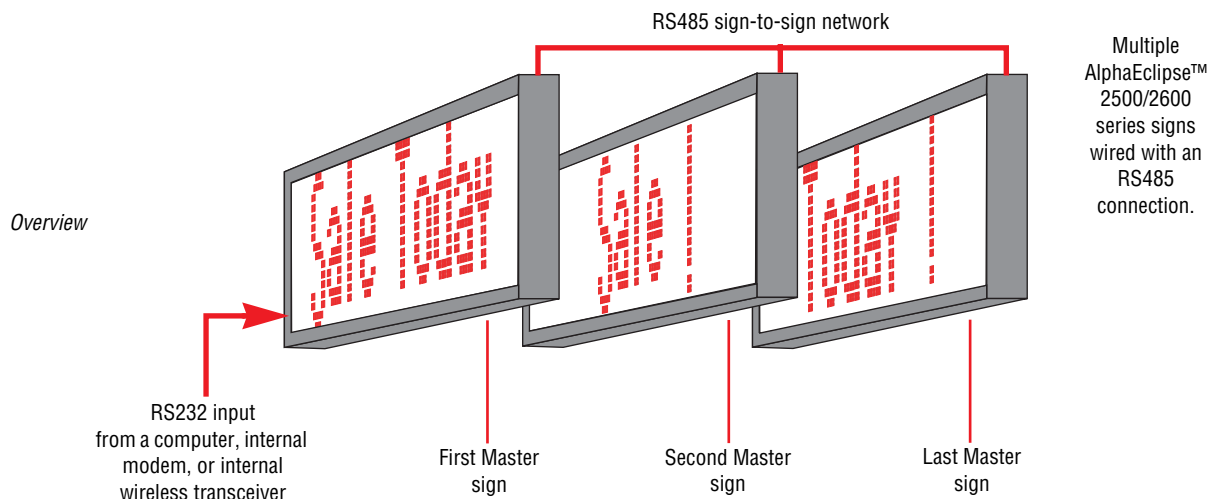
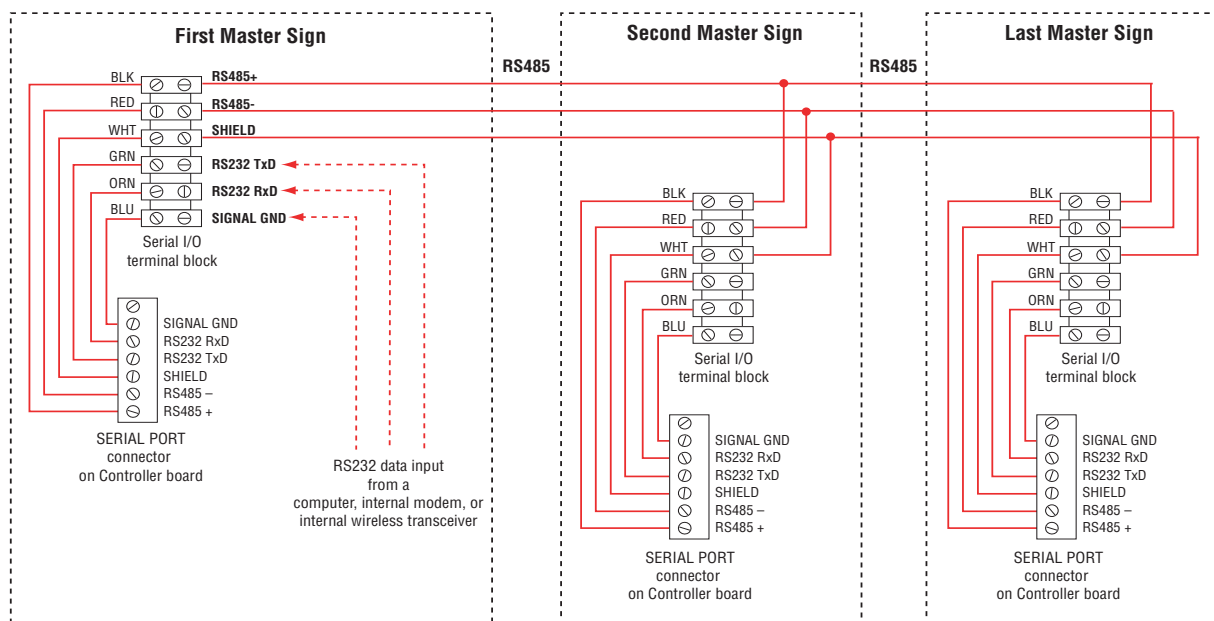
MULTIPLE SIGN MASTER/MASTER NETWORK (WITH RS232 INPUT)

In this sign network, two or more signs are connected to each other.

Using the Master/Master sign-to-sign connection method, a *different* message can be displayed on *each* of the signs.

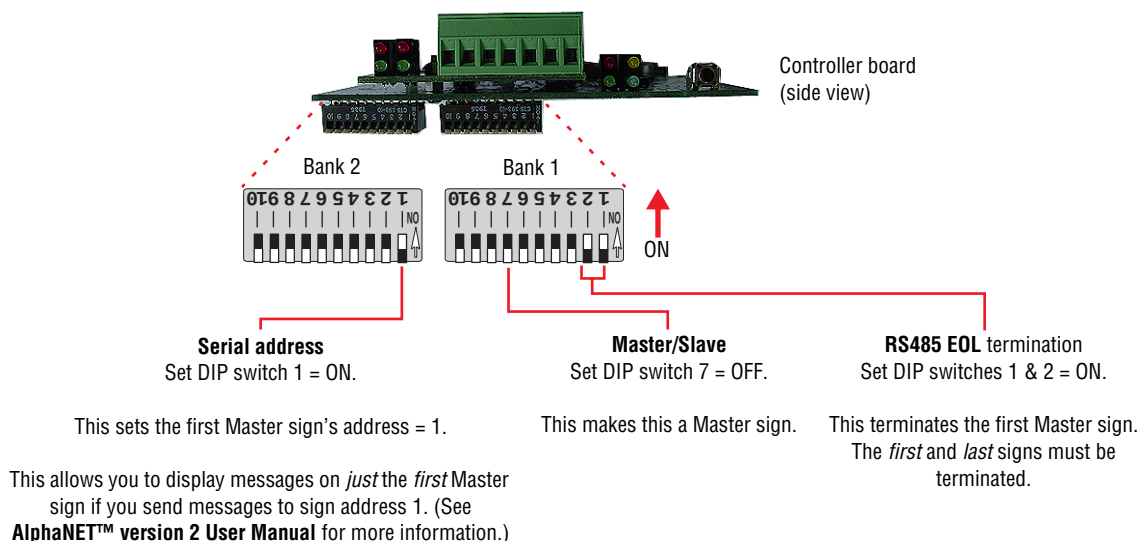
In this configuration, messages are sent to all of the signs using a single RS232 input:

NOTE: It is possible to put a modem or a wireless transceiver in *each* sign. In this case, a RS485 connection between the signs would not be necessary because each sign would have its own RS232 input. Also, unlike the DIP switch settings shown below, RS485 ECHO should be disabled and RS485 EOL termination should be off.

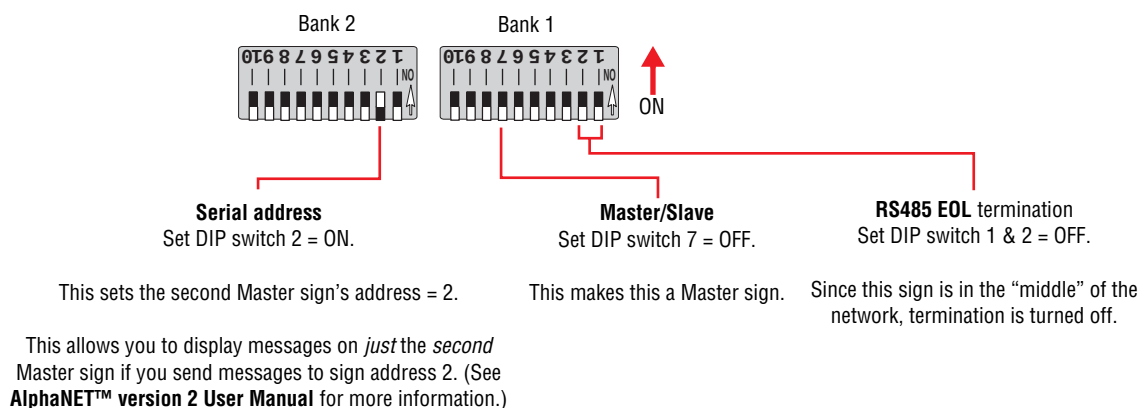
*Internal sign connections*

These are the recommended DIP switch settings for Master/Master multiple sign with RS232 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

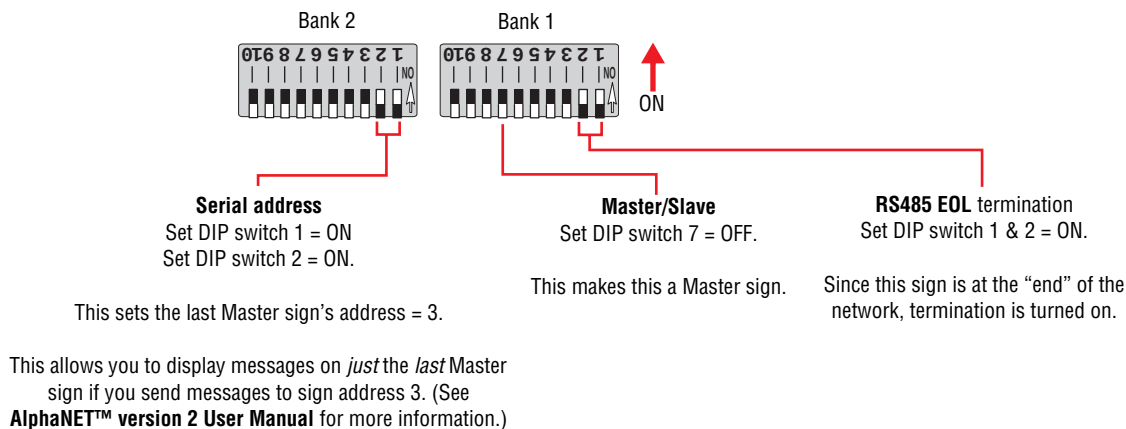
- First Master sign DIP switch settings:**



- Second Master sign DIP switch settings:**



- Last Master sign DIP switch settings:**

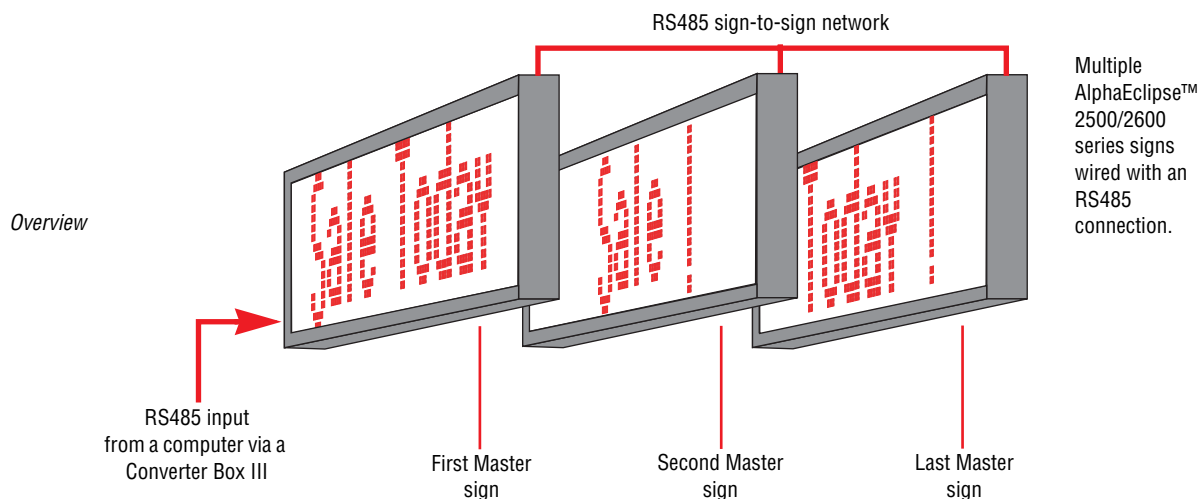


MULTIPLE SIGN MASTER/MASTER NETWORK (WITH RS485 INPUT)

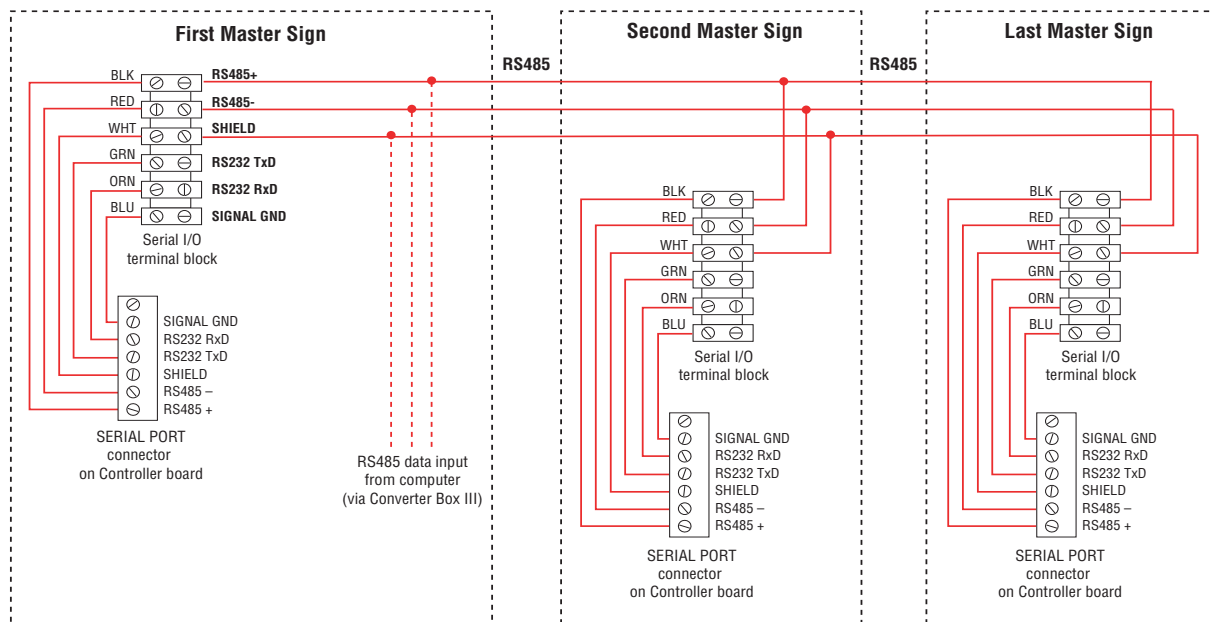
In this sign network, two or more signs are connected to each other.

Using the Master/Master sign-to-sign connection method, a *different* message can be displayed on *each* of the signs.

In this configuration, messages are sent to the signs using a single RS485 input:

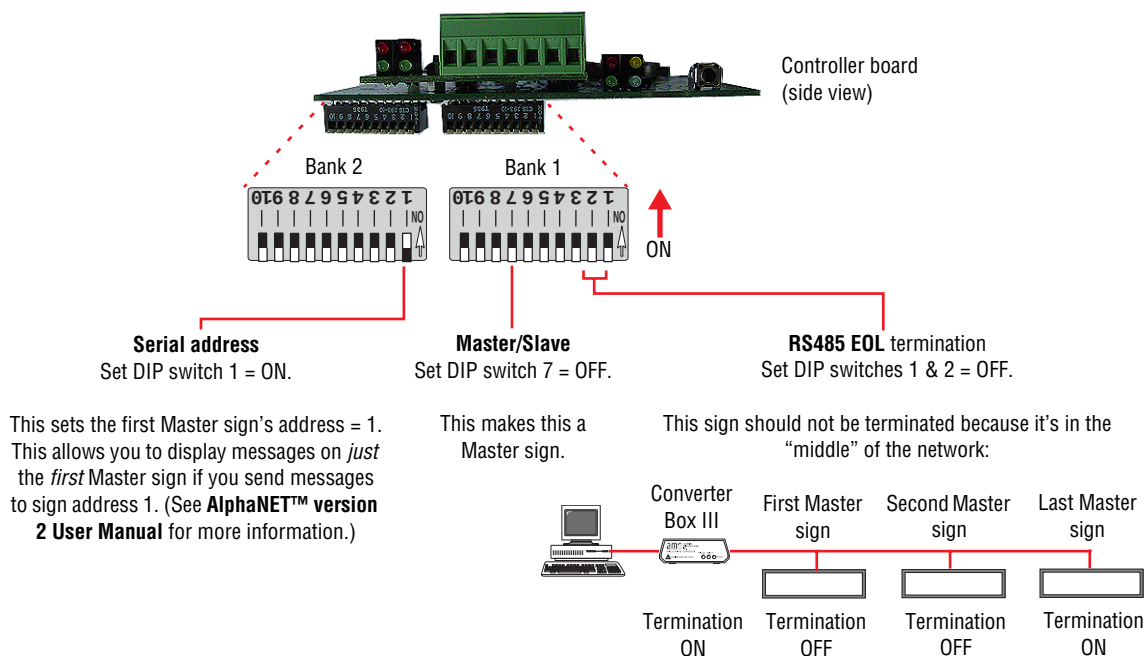


Internal sign connections

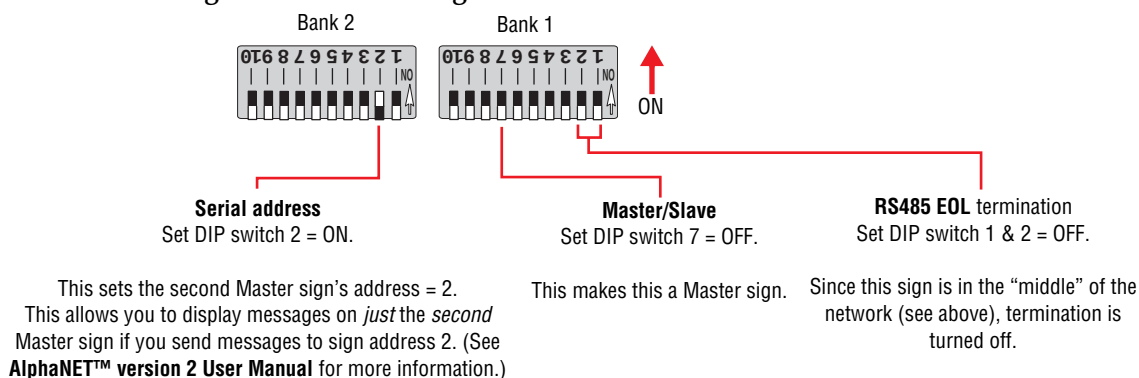


These are the recommended DIP switch settings for Master/Master multiple sign with RS485 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

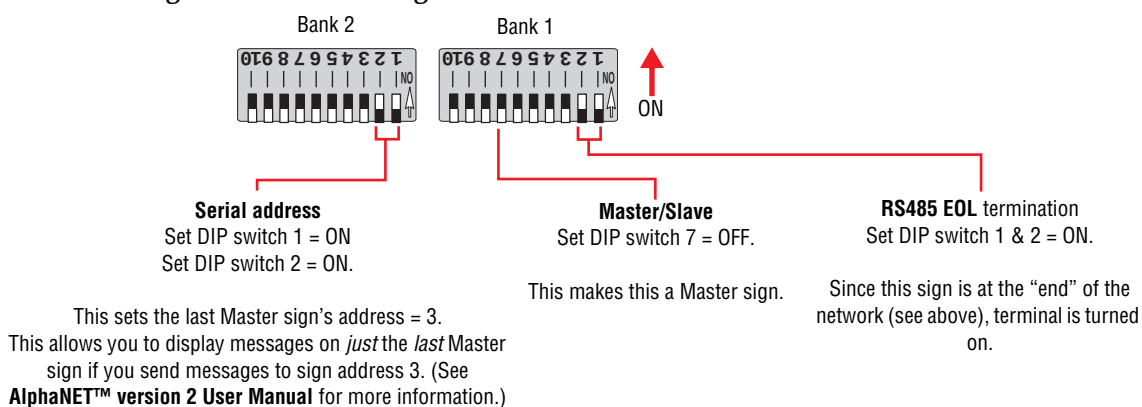
- First Master sign DIP switch settings:**



- Second Master sign DIP switch settings:**



- Last Master sign DIP switch settings:**



Master/Slave sign-to-sign connection methods

NOTE: In order to keep messages displayed on Master/Slave signs synchronized, all the signs must be powered on at the same time or the Master sign must be powered on last.

Signs connected this way will display a message *at the same time*. That is, at any given time, the same message will appear on all the signs. There are two types of Master/Slave sign networks:

- Back-to-back sign Master/Slave network — This is a special case of a multiple sign network involving just two signs. Messages from a computer are sent to these signs using either RS232 (see page 33) or RS485 (see page 35).

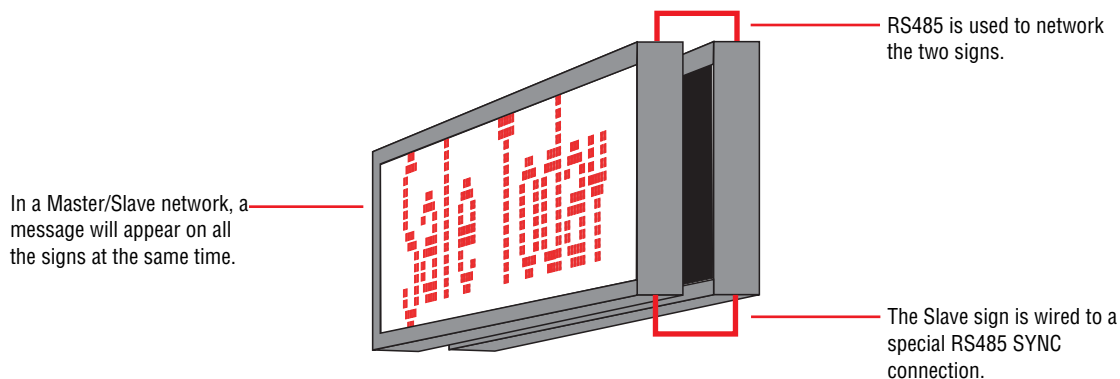


Figure 10: Back-to-back sign Master/Slave network

- Multiple sign Master/Slave network — This involves two or more signs connected together using RS485 plus a special SLAVE connection to each Slave sign. Messages from a computer are sent to these signs using either RS232 (see page 37) or RS485 (see page 39).

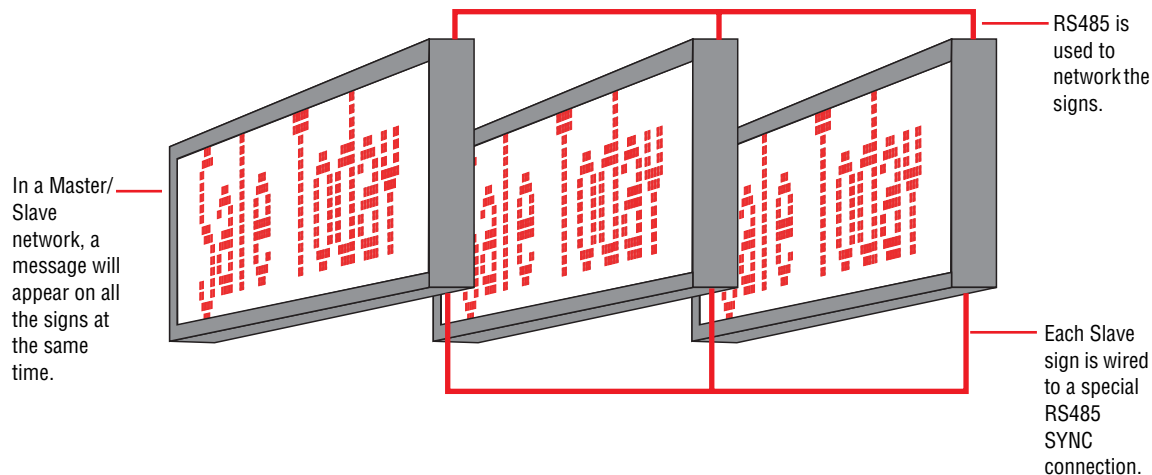


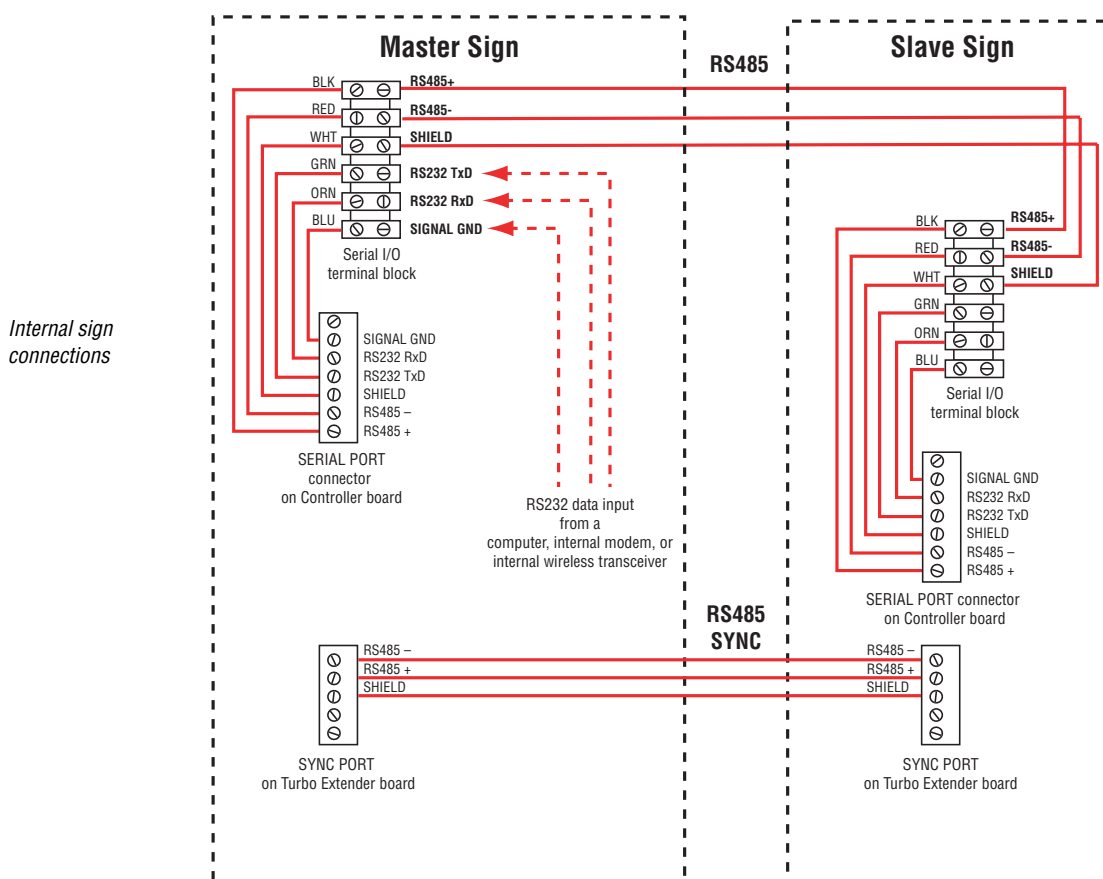
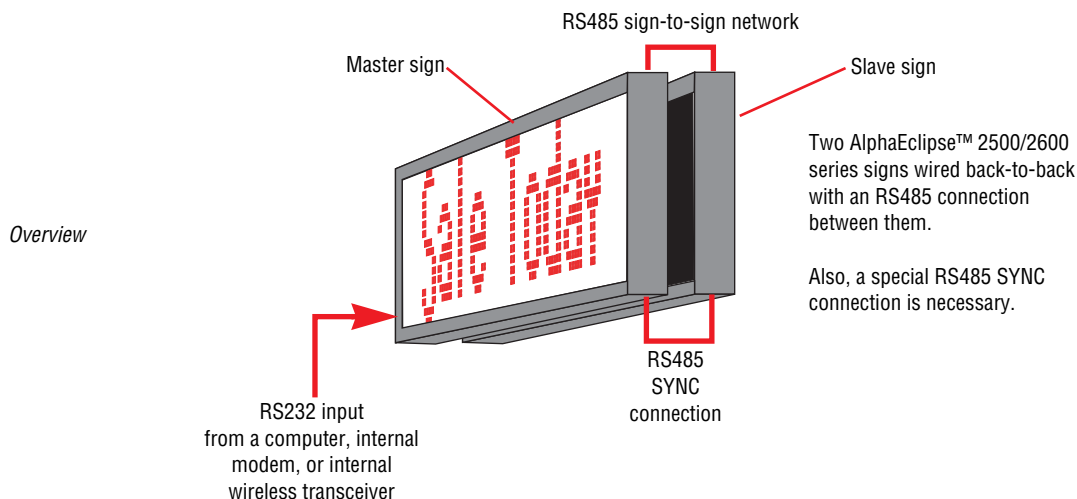
Figure 11: Multiple sign Master/Slave network

BACK-TO-BACK SIGN MASTER/SLAVE NETWORK (WITH RS232 INPUT)

This is a common sign configuration — the backs of two signs are attached to each other and an RS485 sign-to-sign network connects the two signs. Also, the Slave sign is wired to a special SLAVE connection.

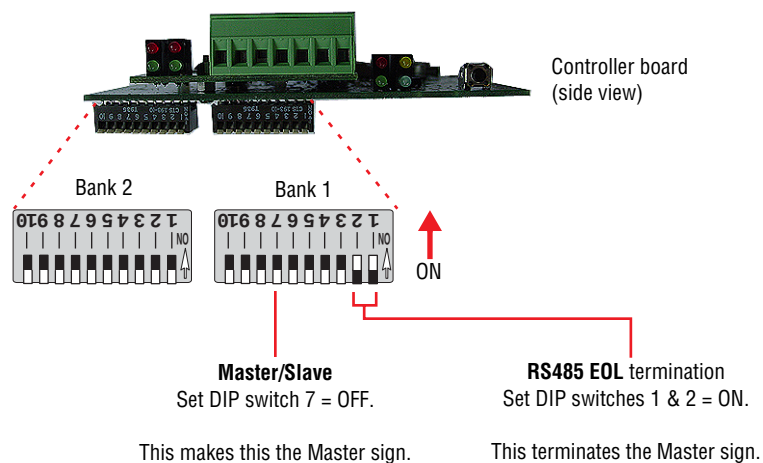
Using the Master/Slave sign-to-sign connection method, a message will appear at the same time on both signs.

In this configuration, messages are sent to both of the signs using a single RS232 input:

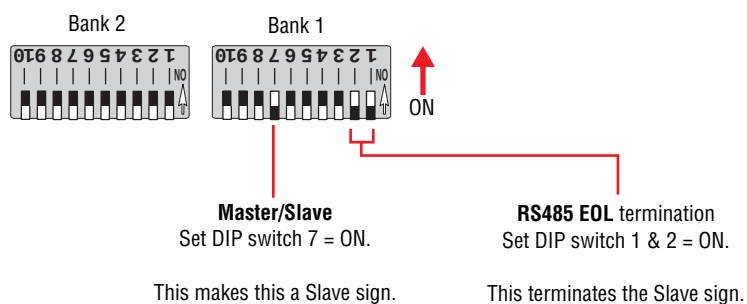


These are the recommended DIP switch settings for Master/Slave back-to-back with RS232 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

- **Master sign DIP switch settings:**



- **Slave sign DIP switch settings:**



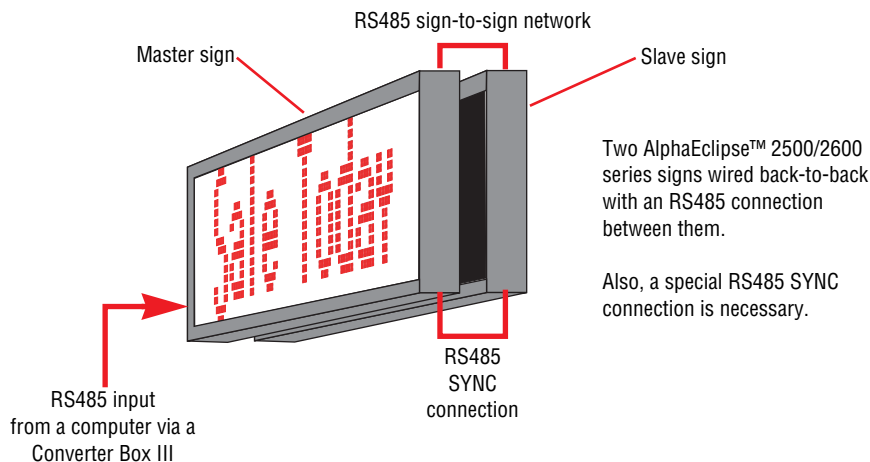
BACK-TO-BACK SIGN MASTER/SLAVE NETWORK (WITH RS485 INPUT)

This is a common sign configuration — the backs of two signs are attached to each other and an RS485 sign-to-sign network connects the two signs. Also, the Slave sign is wired to a special SLAVE connection.

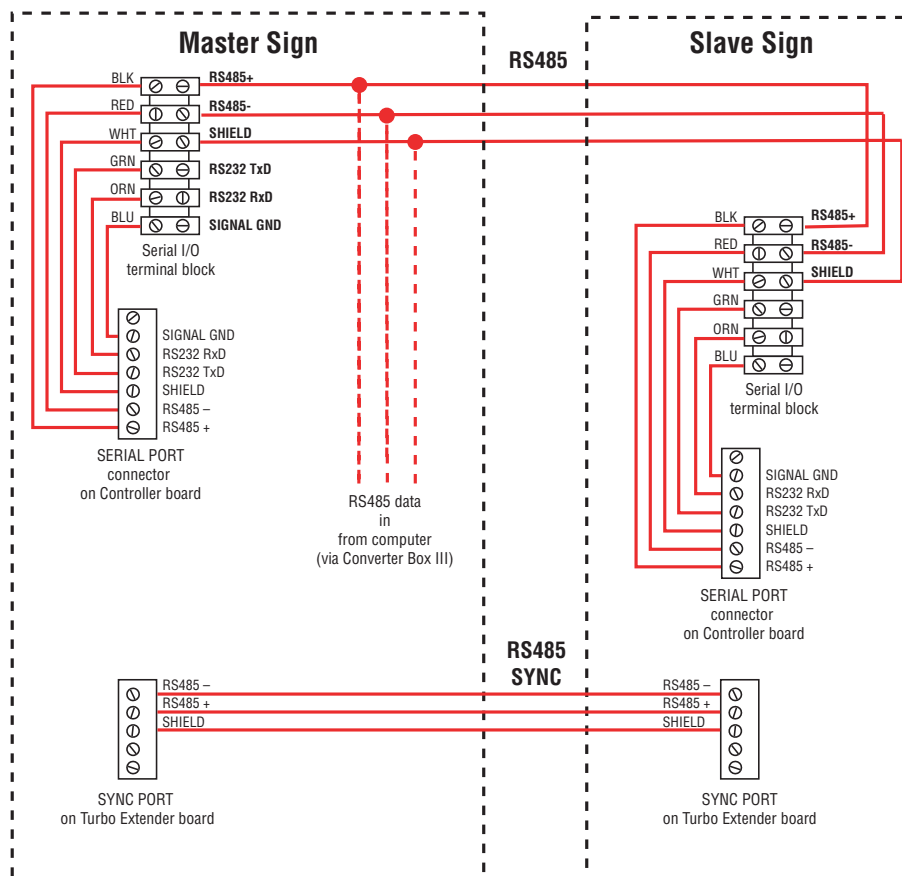
Using the Master/Slave sign-to-sign connection method, a message will appear at the same time on both signs.

In this configuration, messages are sent the signs using a RS485 connection.

Overview

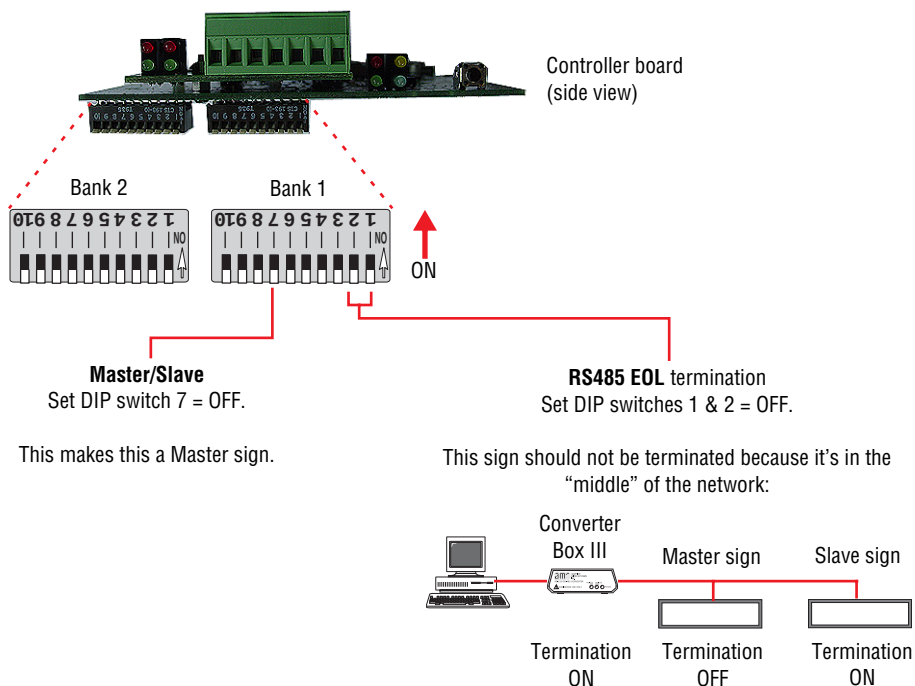


Internal sign connections

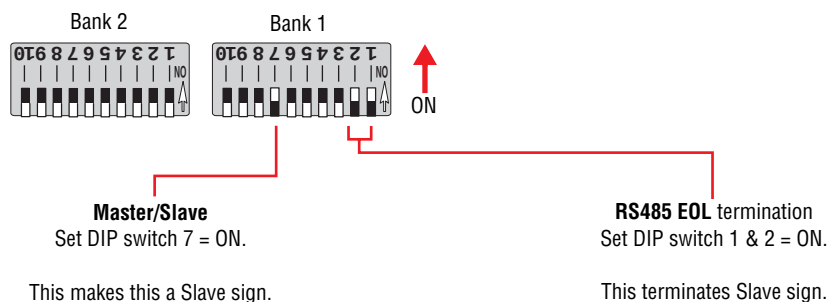


These are the recommended DIP switch settings for Master/Master back-to-back with RS485 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

- **Master sign DIP switch settings:**



- **Slave sign DIP switch settings:**

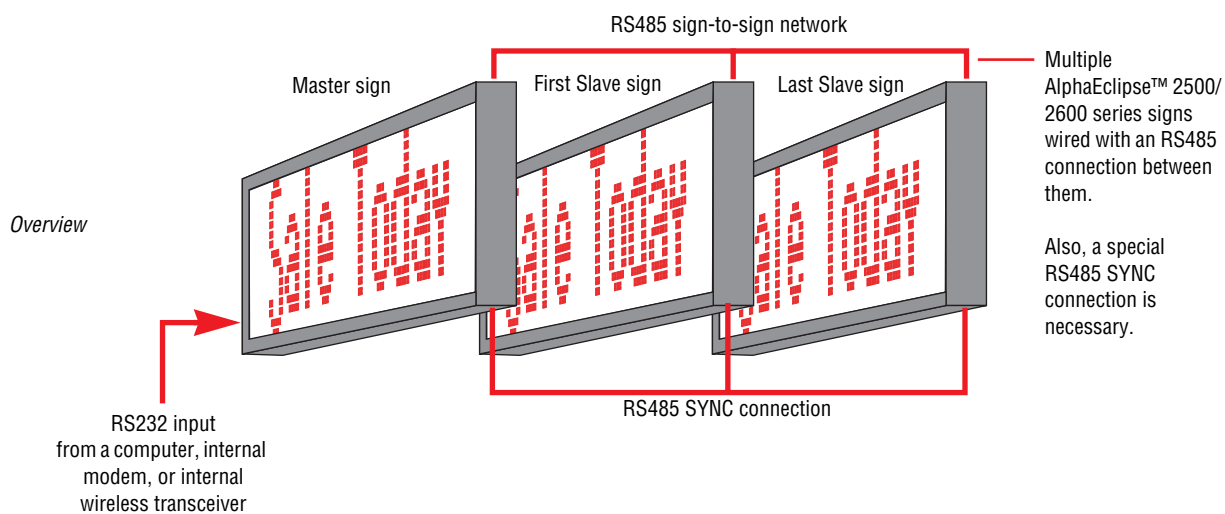


MULTIPLE SIGN MASTER/SLAVE NETWORK (WITH RS232 INPUT)

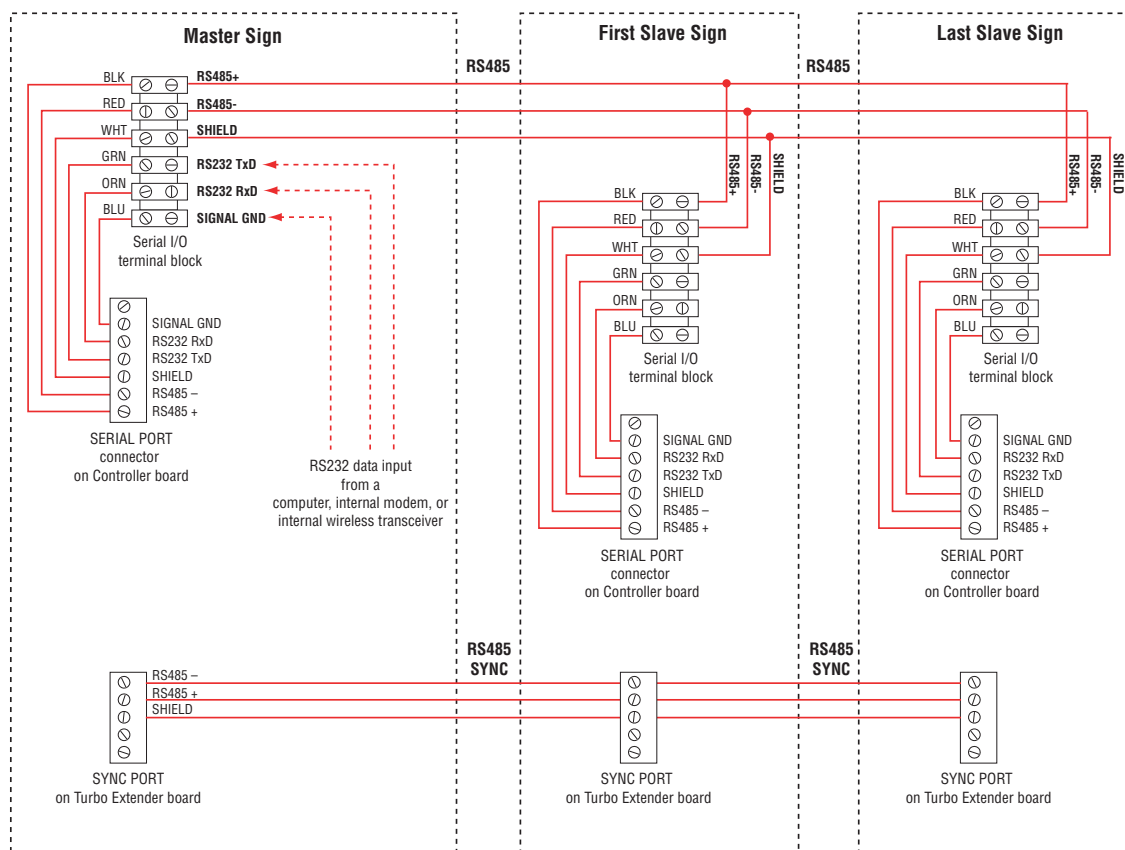
In this sign network, two or more signs are connected to each other.

Using the Master/Slave sign-to-sign connection method, a message will appear at the same time on all the signs.

In this configuration, messages are sent the signs using a RS232 connection:

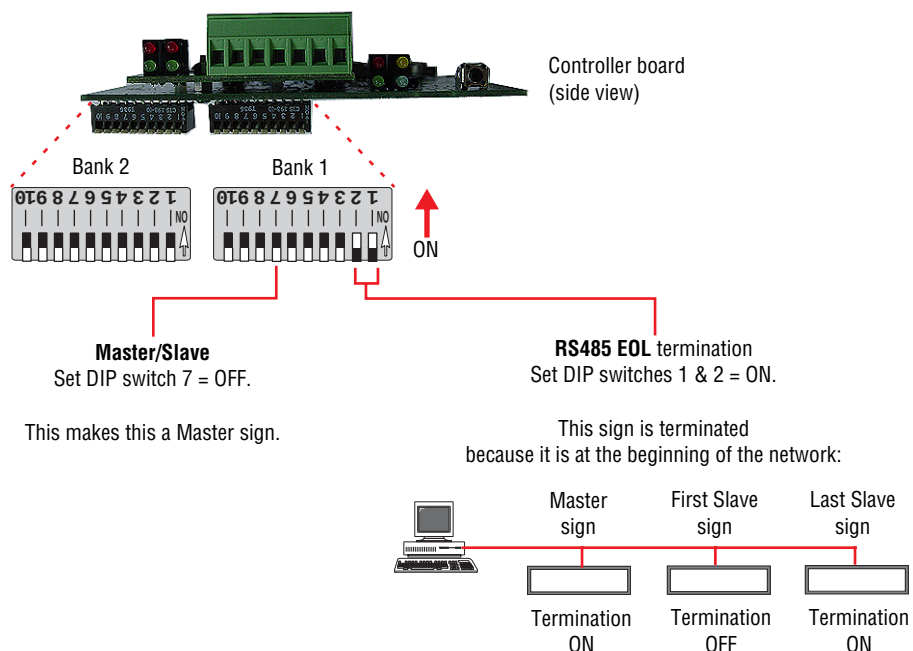


Internal sign connections

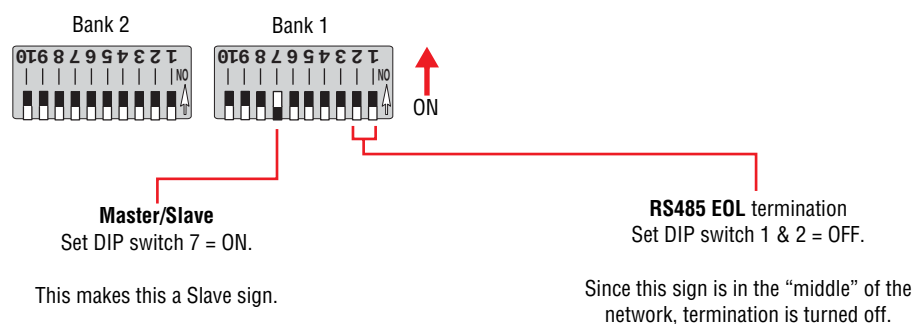


These are the recommended DIP switch settings for Master/Slave multiple sign with RS232 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

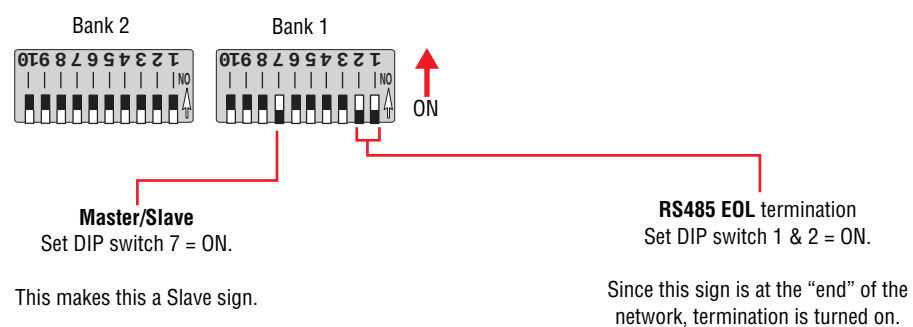
- **Master sign DIP switch settings:**



- **First Slave sign DIP switch settings:**



- **Last Slave sign DIP switch settings:**

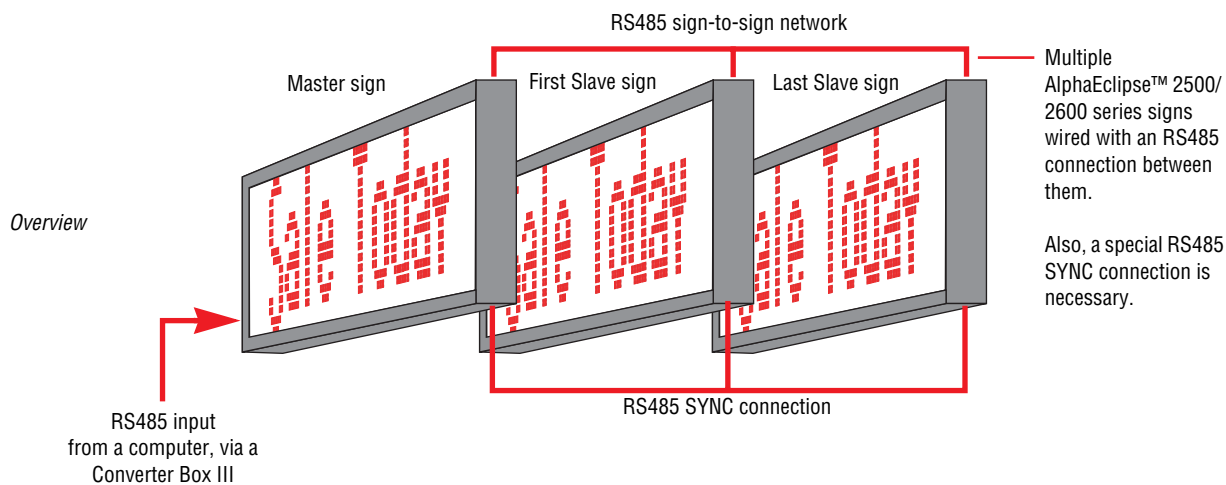
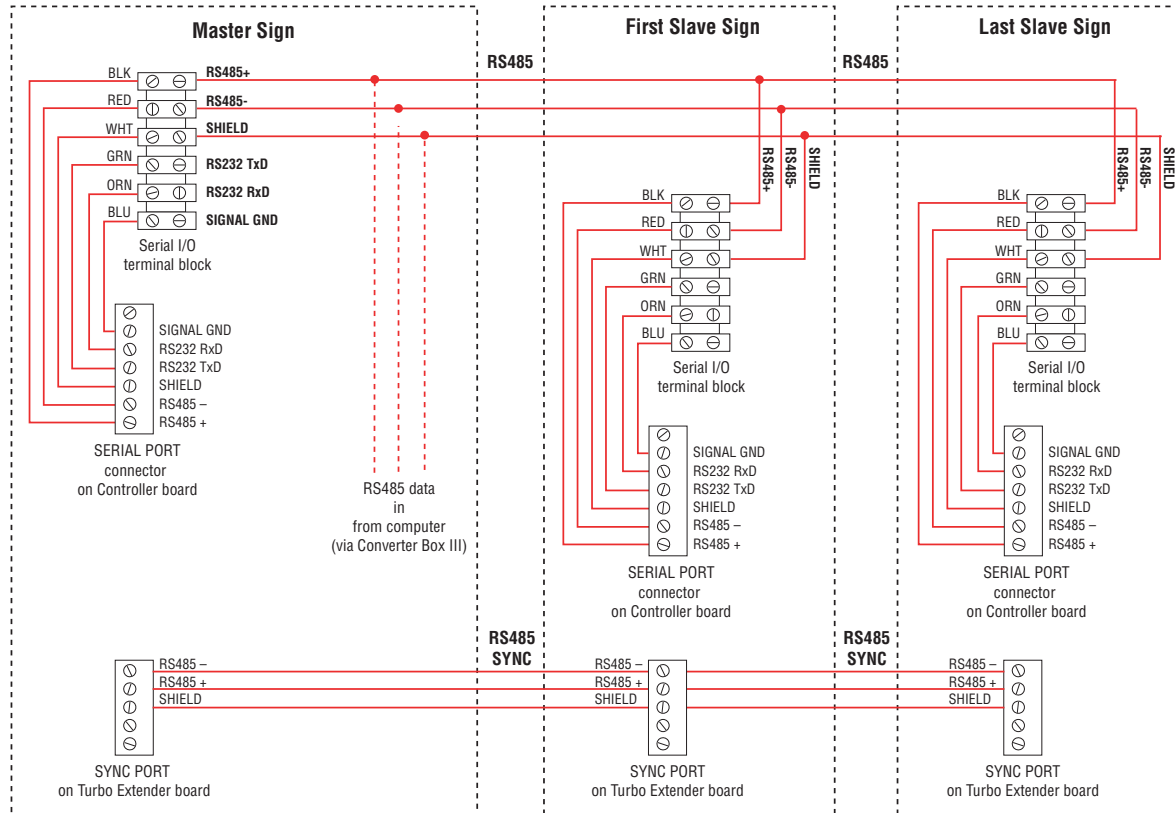


MULTIPLE SIGN MASTER/SLAVE NETWORK (WITH RS485 INPUT)

In this sign network, two or more signs are connected to each other.

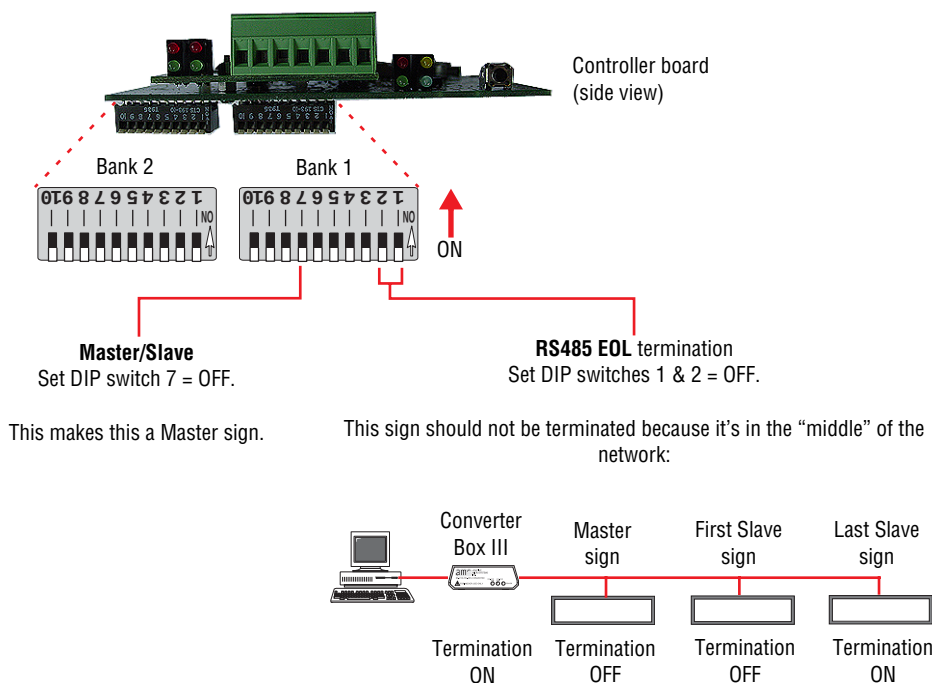
Using the Master/Slave sign-to-sign connection method, a message will appear at the same time on all the signs.

In this configuration, messages are sent the signs using a RS485 connection:

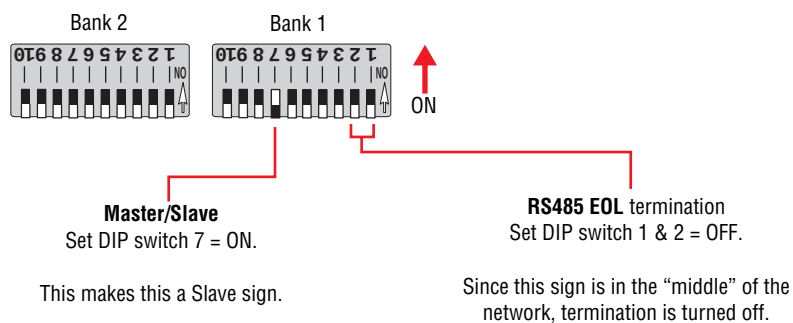
*Internal sign connections*

These are the recommended DIP switch settings for Master/Slave multiple sign with RS485 input (see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71 for more information):

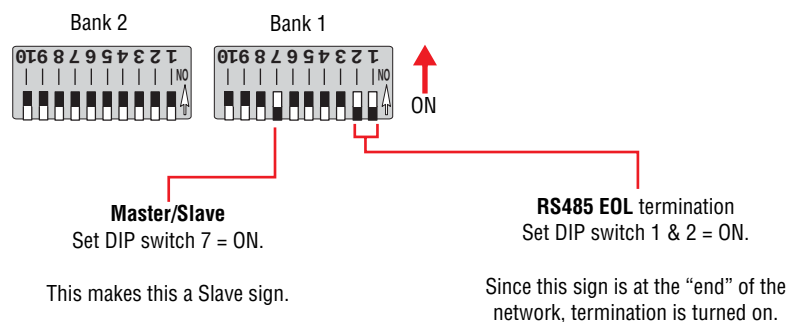
- **Master sign DIP switch settings:**



- **First Slave sign DIP switch settings:**



- **Last Slave sign DIP switch settings:**



Termination

When signs are connected using RS485, EOL (End-Of-Line) termination must be used so that the sign network will work properly.

As a rule of thumb, the *first* sign and the *last* sign in an RS485 network must be terminated.

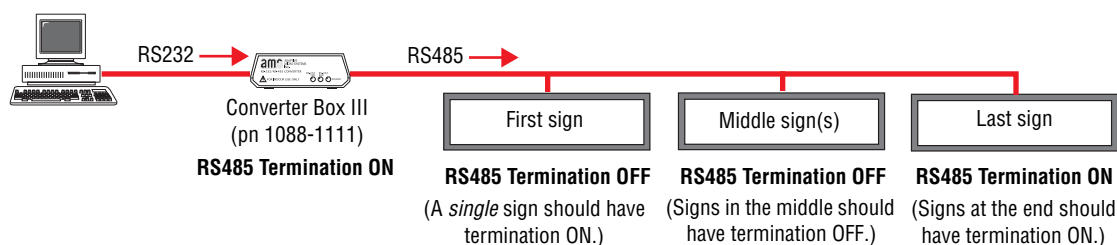
To RS485 terminate an AlphaEclipse™ sign, see “Sign operation settings (Bank 1 and Bank 2 DIP switches)” on page 71.

When the sign receives messages from a computer directly connected to the sign

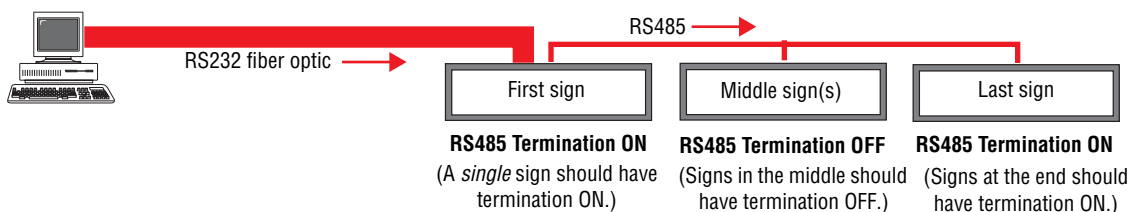
In this type of network, the computer that sends messages to the networked signs is wired *directly* to one of the signs using either a:

- **Converter Box III**

In this case, the Converter Box III must be terminated instead of the first sign in the network. To terminate a Converter Box III, set the switch on the back of this unit to “Terminated”:

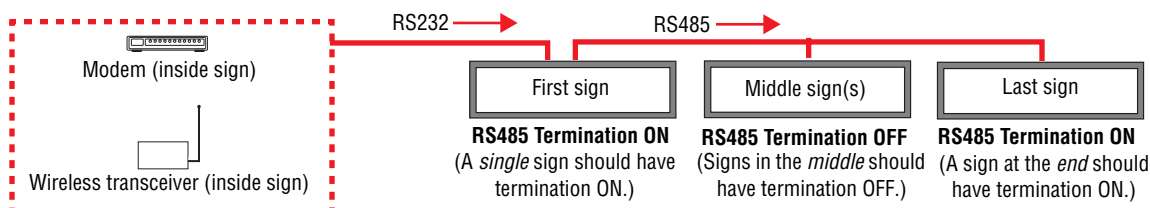


- **fiber optic connection**



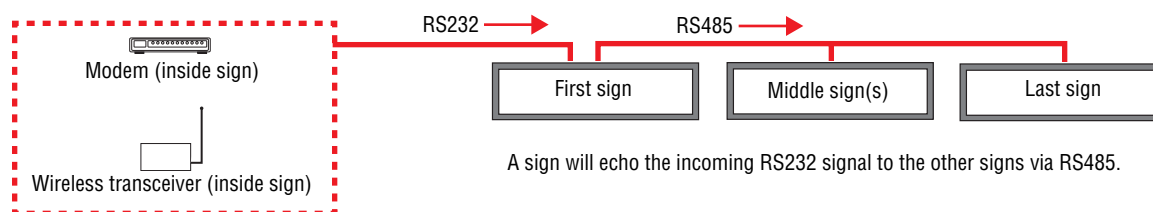
When the sign receives messages from a computer via a modem or wireless transceiver

In this type of RS485 network, the computer that sends messages to the networked signs. Instead, the computer sends messages to a modem or wireless transceiver which is installed *inside* one of the signs.



RS485 ECHO

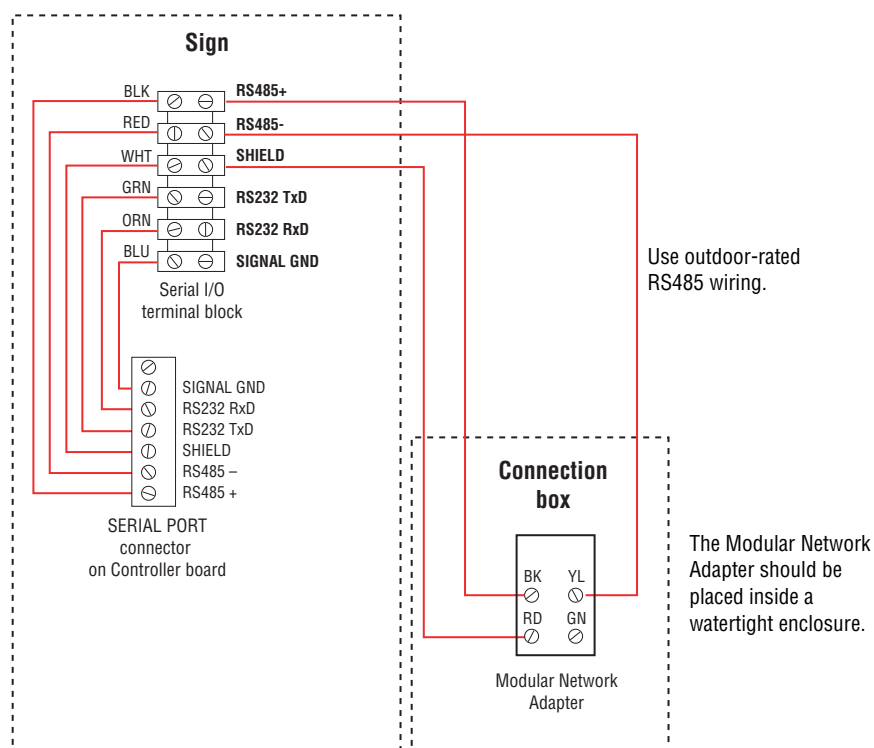
RS485 ECHO is always on. This means that data coming into a sign via RS232 is sent back out the sign through the Controller board's RS485 terminals. This allows information coming into one sign to be relayed to other signs:



External connection box

If only a non-permanent computer connection is needed to a sign, use an external connection box as shown below:

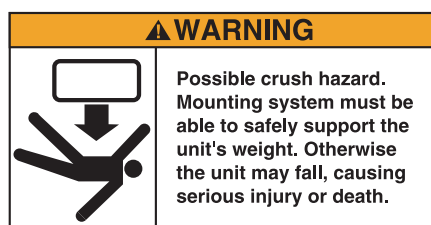
RS485 connection box



4 — Installation

Mechanical installation

Designing the support structure



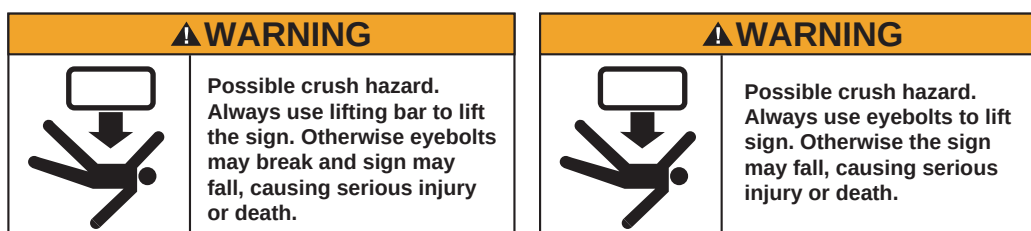
Support structure design depends on the mounting methods, sign size, sign weight, and wind loading.

Support structure design should only be done by a qualified individual. It is the customer's responsibility to ensure that the support structure and mounting hardware are adequate.

It is the installer's responsibility to ensure that the support structure and hardware are capable of supporting the sign and in compliance with all applicable building codes.

Adaptive is not responsible for installations or the structural integrity of support structures done by others.

Lifting the sign



Use the two eyebolts on the sign with a lifting bar to raise the display:

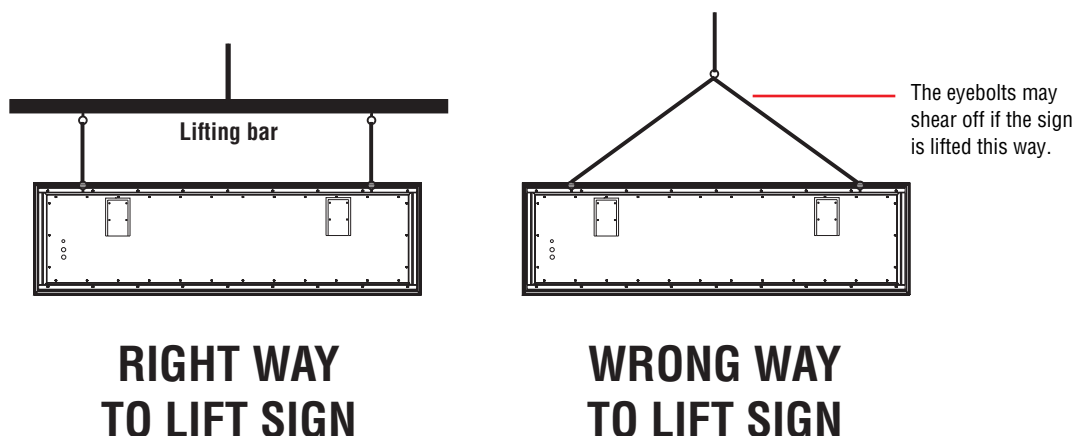


Figure 12: Lifting an AlphaEclipse™ sign

Mounting the sign

Because every installation site is unique, there is no single Adaptive-approved procedure for mounting AlphaEclipse™ signs.

However, follow these guidelines when installing a sign:

- Consult with a professional sign installer to determine the proper mounting system and to comply with all applicable building codes.
- Only use the sign's mounting support brackets to mount the sign. *Mounting to any other parts of the sign will void the warranty.*
- ALL top and bottom mounting support brackets should be used to mount the sign.
- Drill holes as needed in the sign's mounting support brackets for fasteners. *Drilling holes in any other place on the sign will void the warranty.* Follow these guidelines when drilling holes in the mounting support brackets:
 - Drill the minimum number of holes necessary.
 - The distance from the center line of a mounting bolt to the outside edge of a mounting support brackets should NOT be less than two times the diameter of the fasteners.
- Allow fan clearance as shown below.

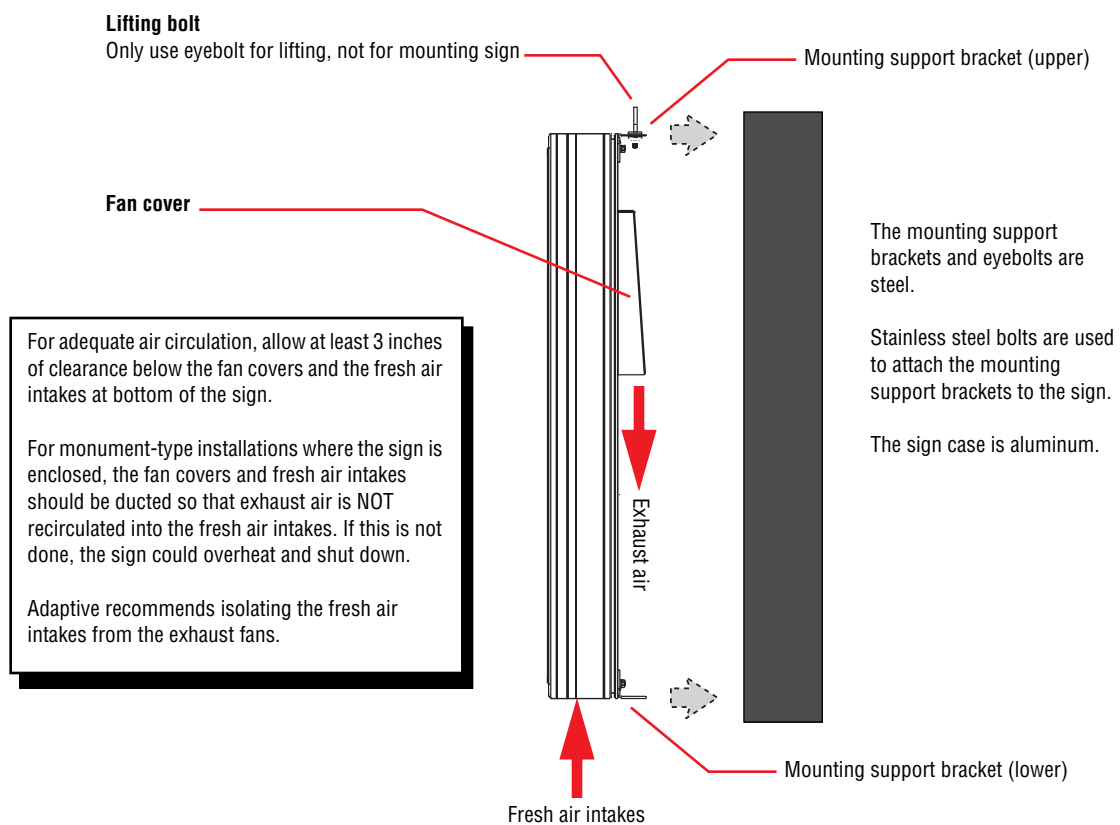
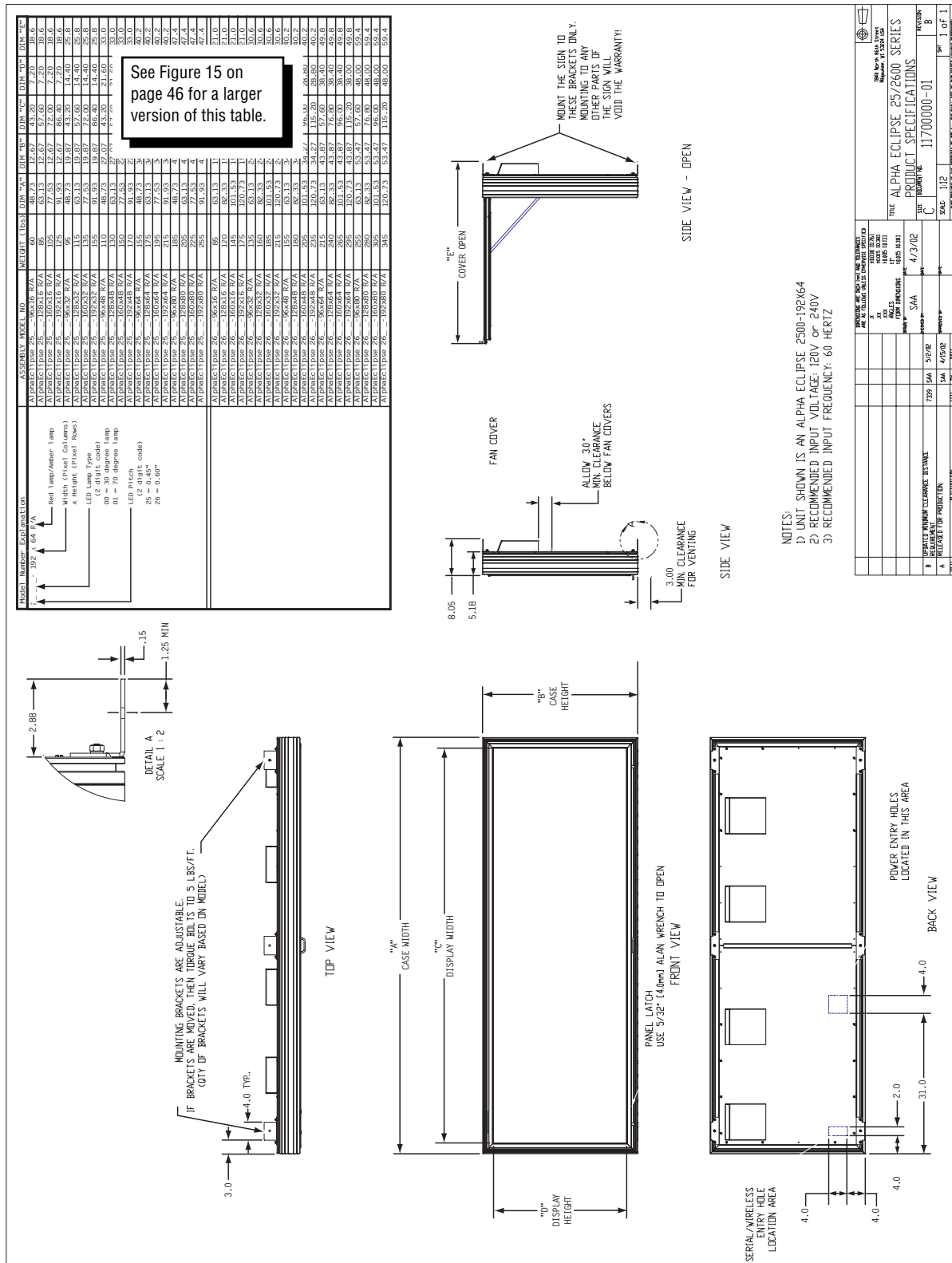


Figure 13: Mounting an AlphaEclipse™ 2500/2600 sign

Mounting a temperature probe

See "Temperature probe option" on page 62.

Installation diagram

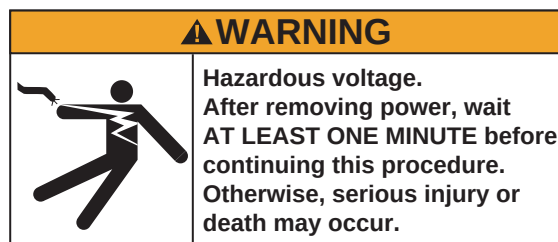
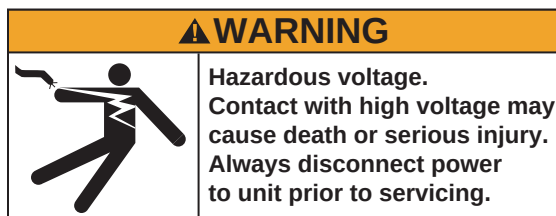


Model Number	Explanation	ASSEMBLY MODEL NO	WEIGHT (lbs)	DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "E"
2_ _ _ - 192 x 64 R/A	↑	AlphaEclipse 25_ _ -96x16 R/A	60	48.73	12.67	43.20	7.20	18.6
	↑	AlphaEclipse 25_ _ -128x16 R/A	85	63.13	12.67	57.60	7.20	18.6
	↑	AlphaEclipse 25_ _ -160x16 R/A	105	77.53	12.67	72.00	7.20	18.6
	↑	AlphaEclipse 25_ _ -192x16 R/A	125	91.93	12.67	86.40	7.20	18.6
	↑	AlphaEclipse 25_ _ -96x32 R/A	95	48.73	19.87	43.20	14.40	25.8
	↑	AlphaEclipse 25_ _ -128x32 R/A	115	63.13	19.87	57.60	14.40	25.8
	↑	AlphaEclipse 25_ _ -160x32 R/A	135	77.53	19.87	72.00	14.40	25.8
	↑	AlphaEclipse 25_ _ -192x32 R/A	155	91.93	19.87	86.40	14.40	25.8
	↑	AlphaEclipse 25_ _ -96x48 R/A	110	48.73	27.07	43.20	21.60	33.0
	↑	AlphaEclipse 25_ _ -128x48 R/A	130	63.13	27.07	57.60	21.60	33.0
	↑	AlphaEclipse 25_ _ -160x48 R/A	150	77.53	27.07	72.00	21.60	33.0
	↑	AlphaEclipse 25_ _ -192x48 R/A	170	91.93	27.07	86.40	21.60	33.0
	↑	AlphaEclipse 25_ _ -96x64 R/A	155	48.73	34.27	43.20	28.80	40.2
	↑	AlphaEclipse 25_ _ -128x64 R/A	175	63.13	34.27	57.60	28.80	40.2
	↑	AlphaEclipse 25_ _ -160x64 R/A	195	77.53	34.27	72.00	28.80	40.2
	↑	AlphaEclipse 25_ _ -192x64 R/A	215	91.93	34.27	86.40	28.80	40.2
	↑	AlphaEclipse 25_ _ -96x80 R/A	185	48.73	41.47	43.20	36.00	47.4
	↑	AlphaEclipse 25_ _ -128x80 R/A	205	63.13	41.47	57.60	36.00	47.4
	↑	AlphaEclipse 25_ _ -160x80 R/A	225	77.53	41.47	72.00	36.00	47.4
	↑	AlphaEclipse 25_ _ -192x80 R/A	255	91.93	41.47	86.40	36.00	47.4
		AlphaEclipse 26_ _ -96x16 R/A	85	63.13	15.07	57.60	9.60	21.0
		AlphaEclipse 26_ _ -128x16 R/A	120	82.33	15.07	76.80	9.60	21.0
		AlphaEclipse 26_ _ -160x16 R/A	145	101.53	15.07	96.00	9.60	21.0
		AlphaEclipse 26_ _ -192x16 R/A	175	120.73	15.07	115.20	9.60	21.0
		AlphaEclipse 26_ _ -96x32 R/A	135	63.13	24.67	57.60	19.20	30.6
		AlphaEclipse 26_ _ -128x32 R/A	160	82.33	24.67	76.80	19.20	30.6
		AlphaEclipse 26_ _ -160x32 R/A	185	101.53	24.67	96.00	19.20	30.6
		AlphaEclipse 26_ _ -192x32 R/A	215	120.73	24.67	115.20	19.20	30.6
		AlphaEclipse 26_ _ -96x48 R/A	155	63.13	34.27	57.60	28.80	40.2
		AlphaEclipse 26_ _ -128x48 R/A	180	82.33	34.27	76.80	28.80	40.2
		AlphaEclipse 26_ _ -160x48 R/A	205	101.53	34.27	96.00	28.80	40.2
		AlphaEclipse 26_ _ -192x48 R/A	235	120.73	34.27	115.20	28.80	40.2
		AlphaEclipse 26_ _ -96x64 R/A	215	63.13	43.87	57.60	38.40	49.8
		AlphaEclipse 26_ _ -128x64 R/A	240	82.33	43.87	76.80	38.40	49.8
		AlphaEclipse 26_ _ -160x64 R/A	265	101.53	43.87	96.00	38.40	49.8
		AlphaEclipse 26_ _ -192x64 R/A	295	120.73	43.87	115.20	38.00	49.8
		AlphaEclipse 26_ _ -96x80 R/A	255	63.13	53.47	57.60	48.00	59.4
		AlphaEclipse 26_ _ -128x80 R/A	280	82.33	53.47	76.80	48.00	59.4
		AlphaEclipse 26_ _ -160x80 R/A	305	101.53	53.47	96.00	48.00	59.4
		AlphaEclipse 26_ _ -192x80 R/A	345	120.73	53.47	115.20	48.00	59.4

Figure 15: AlphaEclipse™ 2500/2600 specification-Part 2

Electrical installation

Electrical installation should only be attempted by a qualified electrician. Electrical connection must comply with all applicable national and local codes.



Guidelines for electrical installation

- Inspect all internal sign cabling for proper connection and seating.
- All power wiring must be from circuit breaker-protected lines.
- A two-pole disconnect device must be installed in the building wiring for each branch circuit supplying the sign.
- The sign must be properly earth grounded. The sign's support structure should NOT be used as ground.
- Run separate conduits for signal wires (for example, RS232, RS485) and for power wires.
- All electrical connections must be watertight.
- Use minimum 85° C copper wire only.

Utiliser uniquement un fil en cuivre pouvant supporter 85° C minimum.

Opening the sign

NOTE: Do NOT attempt to open the door on a sign in windy conditions because if winds are sufficiently strong, the door could be damaged or blown off the sign.

1. Disconnect power from the sign.
2. Use a 5/32-inch hex key tool to unlock and open the locking latches along the lower edge of the sign's front door:

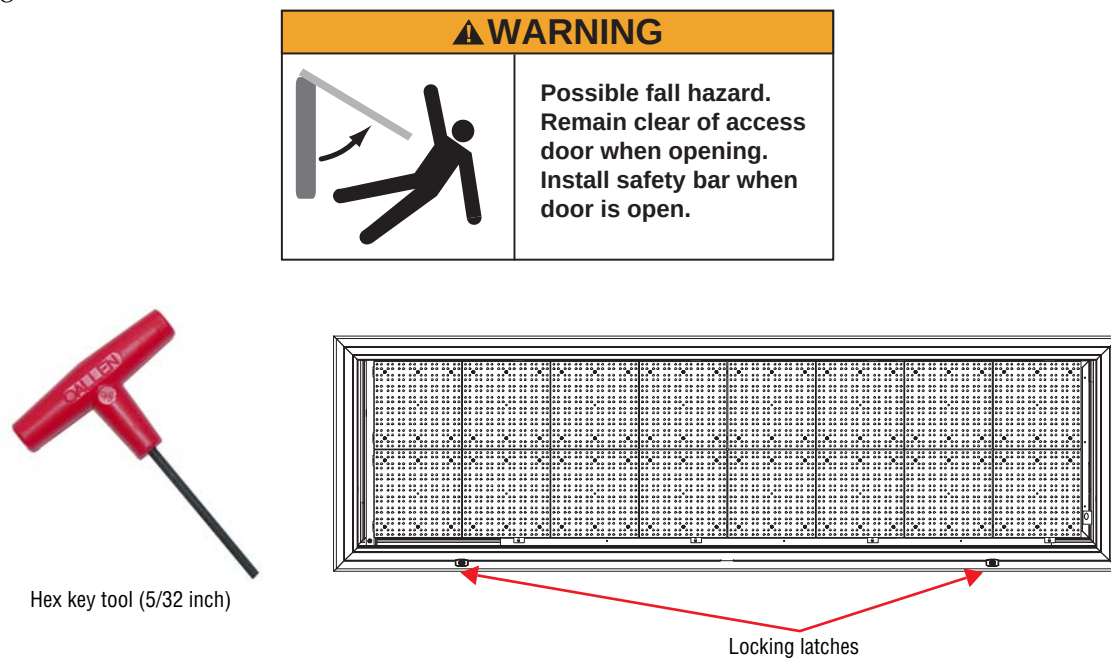


Figure 16: Opening/closing sign door

3. Stand away from the front of the unit. Then lift the door upward.
4. Swing each safety bar up and attach it to the bolt *inside* the sign using the supplied wing nut. See Figure 19, "Prop rod and safety bar," on page 49.

Raising the LED boards

5. Remove the rail screws (circled below) at the bottom of each internal vertical rail:

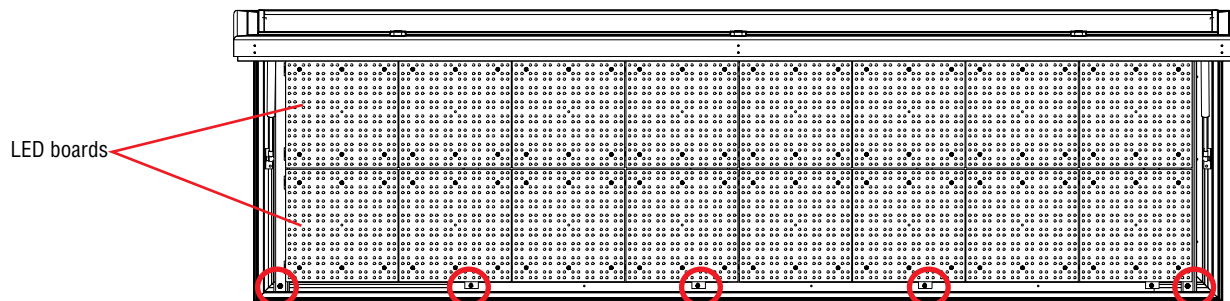


Figure 17: Internal vertical rail screws

6. Carefully lift the LED boards up by placing your fingers in the mounting rail holes — not underneath an LED board:



Figure 18: Lifting LED boards

7. Lower and fasten each prop bar to support the LED boards:

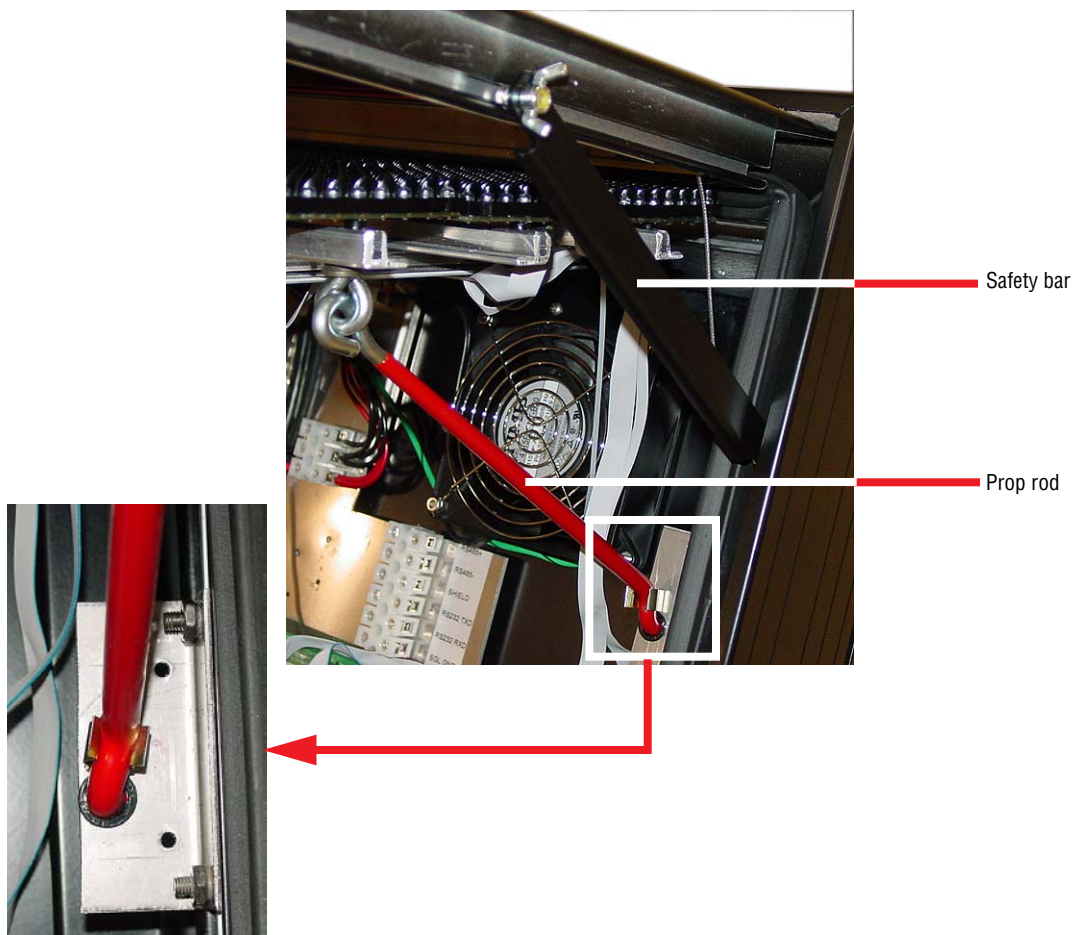


Figure 19: Prop rod and safety bar

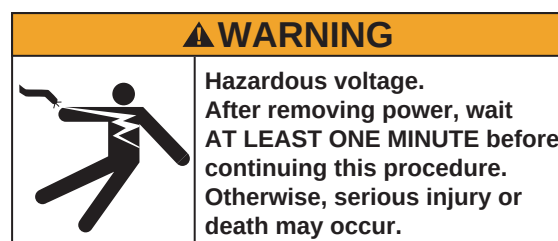
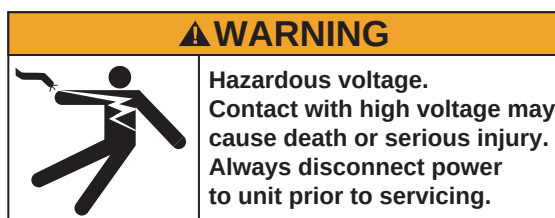
8. Once the LED boards are raised and supported by the prop bar(s), turn off the sign's internal power switch by pressing 0.

Installing signal wiring

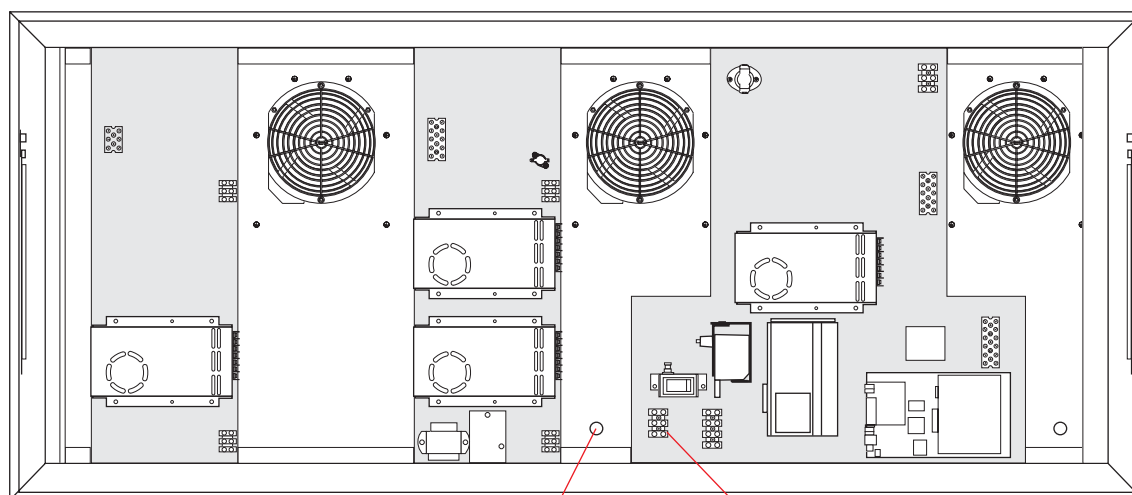
9. In order to display messages, a sign will need to communicate with a computer. This may require special wiring and setup depending on your sign's options and if your sign is networked to another sign(s):
- For networking choices, see "3 — Networking signs" on page 15.
 - For sign options, see "AlphaEclipse™ 2500/2600 series sign options" on page 62.

Connecting power to the sign

NOTE: Electrical installation should only be attempted by a qualified electrician. Electrical connection must comply with all applicable national and local codes.



10. Connect sign to an appropriate power source. See Table 9 on page 68 for more information:



Power line conduit opening
Connect power lines to a
20-amp dedicated service
breaker.

Terminal block	120V	240V
1	LINE	LINE 1
2	NEUTRAL	LINE 2
3	GROUND	GROUND

Figure 20: Mains power connection

Grounding the sign

11. The sign must be properly earth grounded. *The sign's support structure should NOT be used as ground.*

12. At this point the sign should be:

- mounted on a structure,
- connected to a computer, and
- connected to a power source.

NOTE: Even though the sign is connected to a power source, power should NOT be applied to the sign yet.

Testing the exhaust fans

13. Push 1 on the sign's internal power switch.

14. If the exhaust fans are not already on, press the intermittent switch on the side of the power switch. All the exhaust fans should start up.

Closing the sign

NOTE: Before closing the sign, make sure that the signal and power conduit openings are sealed and waterproof.

15. Raise each prop bar and fasten under LED boards:

NOTE: If a prop rod is not fastened, it may swing free and damage internal sign components.

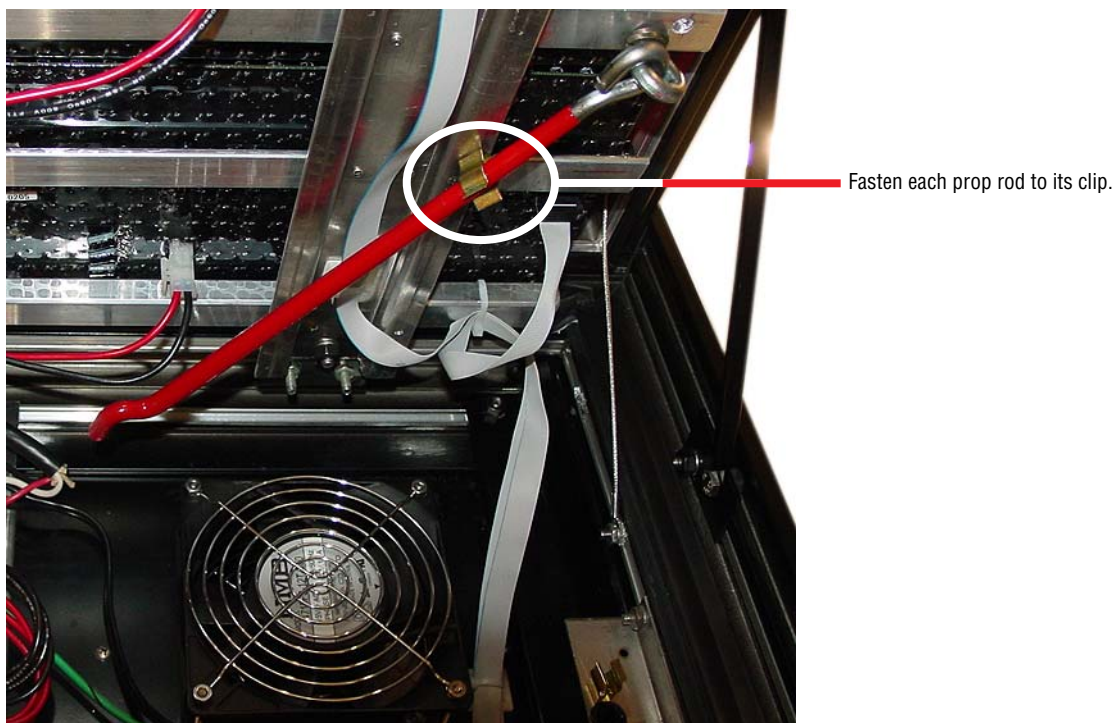


Figure 21: Fastening a prop rod

16. Lower the LED boards.
17. Refasten screws to the internal vertical rails. See Figure 17, "Internal vertical rail screws," on page 48.
18. Unfasten the sign safety bars and place the bars inside the sign.
19. With a hex key tool, use the locking latches to close sign door. See Figure 16, "Opening/closing sign door," on page 48.

Installation checkout test

Perform this test after completing:

- Mechanical installation (see page 43) and
 - Electrical installation (see page 47)
1. Apply power to the sign. If power is already applied, turn the sign off then on.
 2. Messages similar to the following should appear on the sign in the sequence listed:

Sequence	Example message	Description
1	DIP DISABLED	Only seen if the DIP switches have been disabled by the <i>AlphaNET Diagnostics</i> software.
2	11705001A 2500	<i>1170-5001A4</i> = Main FLASH firmware version <i>2500</i> (or <i>2600</i>) = AlphaEclipse™ sign model
3	OUTDOOR M-192x80	<i>OUTDOOR</i> = sign type <i>M</i> = sign is set up as a Master (<i>S</i> = Slave) <i>192x-80</i> = columns x rows of LEDs
4	SER ADDR 01 HEX	<i>01</i> = serial address of sign (in hexadecimal)
5	AUTO BAUD 7E2/8N1	Baud rate and data format (<i>AUTO BAUD</i> is default) This will appear only if Autobaud has been selected.
	SER. DATA 9600, 8N1	If Autobaud has not been selected, this will appear: <i>9600</i> = baud rate <i>8</i> = number of data bits <i>N</i> = no parity (e = even parity, o = odd parity) <i>1</i> = number of stop bits
6	PERF REV 11704001A0107	<i>11704001A0107</i> = Peripheral FLASH firmware version
7	FPGA REV 26111701 1.1	<i>26111701 1.1</i> = FPGA chip number and revision.
8	RAM 1 512K RAM 2 512K	Amount of RAM in the sign. In this case, the amount of RAM = 1 GB (512K + 512K)
9	1:22 AM MON 1/5/02	<i>1:22 AM MON</i> = Time and day of week set in the sign. <i>1/5/02</i> = Date set in sign. (To change these, see "Setting the time and date on a sign" on page 58.)
10	CHK FLASH	FLASH OK = FLASH memory status is good
11	LO = F6C7 HI = 327E	Low and high checksums for FLASH memory

5 — Basic operating instructions

The purpose of this section is to show how to set up AlphaNET messaging software in order to send messages to a sign. For more information, see the **AlphaNET™ version 2 User Manual**.

NOTE: Examples from AlphaNET version 2 software are shown below.

Basic setup for AlphaNET software

To send messages from a computer to a sign using AlphaNET software, this software must be set up based on how your computer is connected to the sign. To set up the software, you need to:

- Create a Device
- Create a Site
- Create and send messages

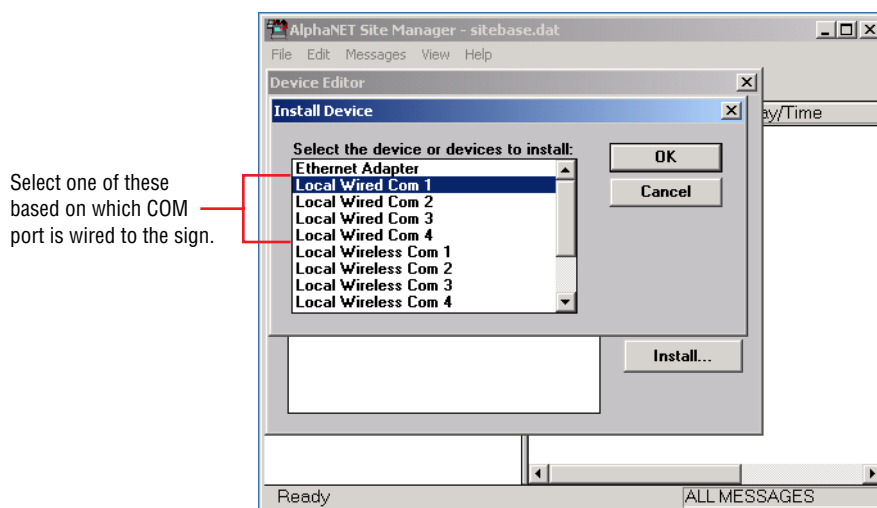
Create a Device

Use the *Site Manager* in the AlphaNET software to create a Device based on how your computer is connected to the sign:

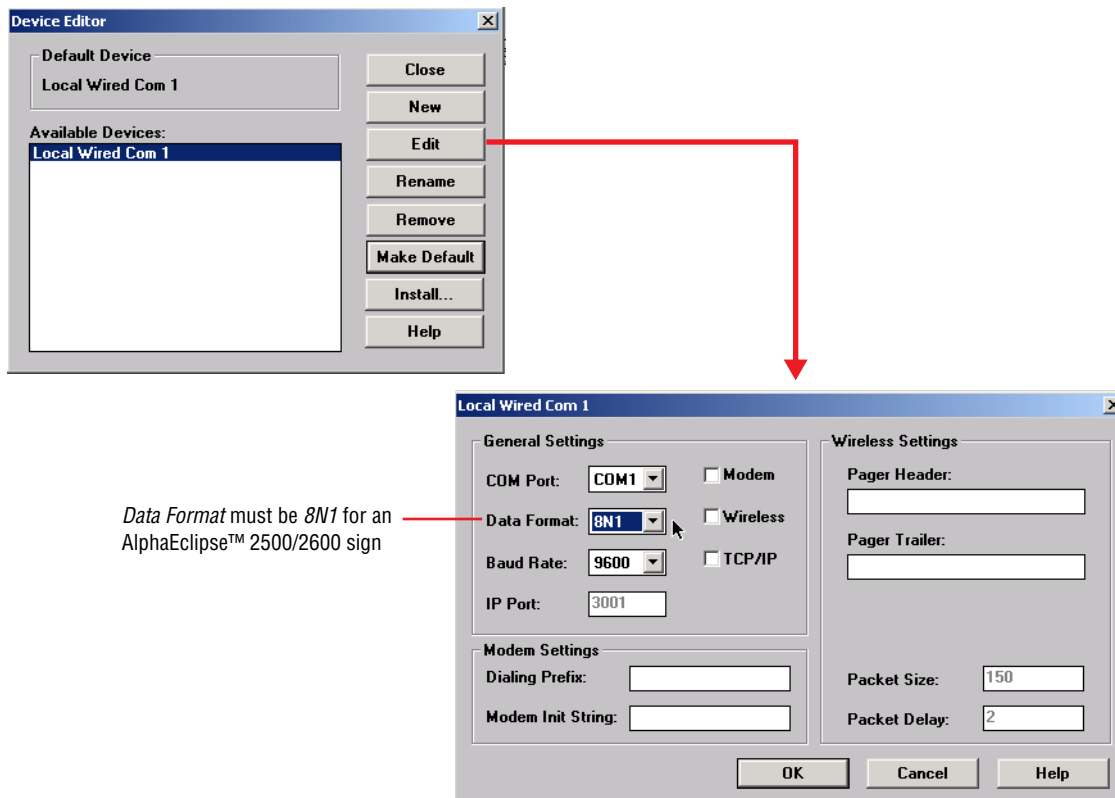
- Wired (RS232 or RS485) — see “Device setup for a Wired or Wireless connection” on page 54.
- Modem — see “Device setup for a Modem connection” on page 55.
- Wireless — see “Device setup for a Wired or Wireless connection” on page 54.

DEVICE SETUP FOR A WIRED OR WIRELESS CONNECTION

1. In the AlphaNET software, open the *Site Manager* and select *Edit > Device > Install*. Choose one of the *Local Wired* devices and then click on OK:

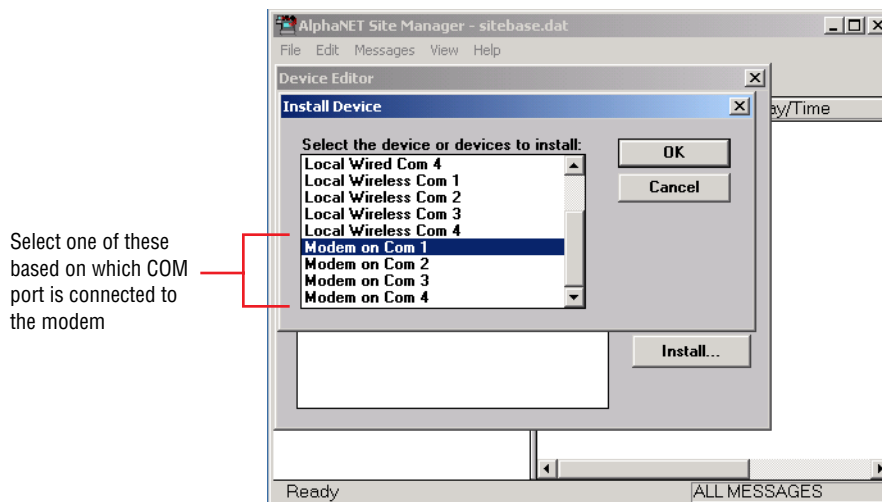


- Highlight the *Local Wired* device and click on *Edit*. Make sure your settings match those shown below. Then click OK and go to “Site setup for a Wired or Wireless connection” on page 57.

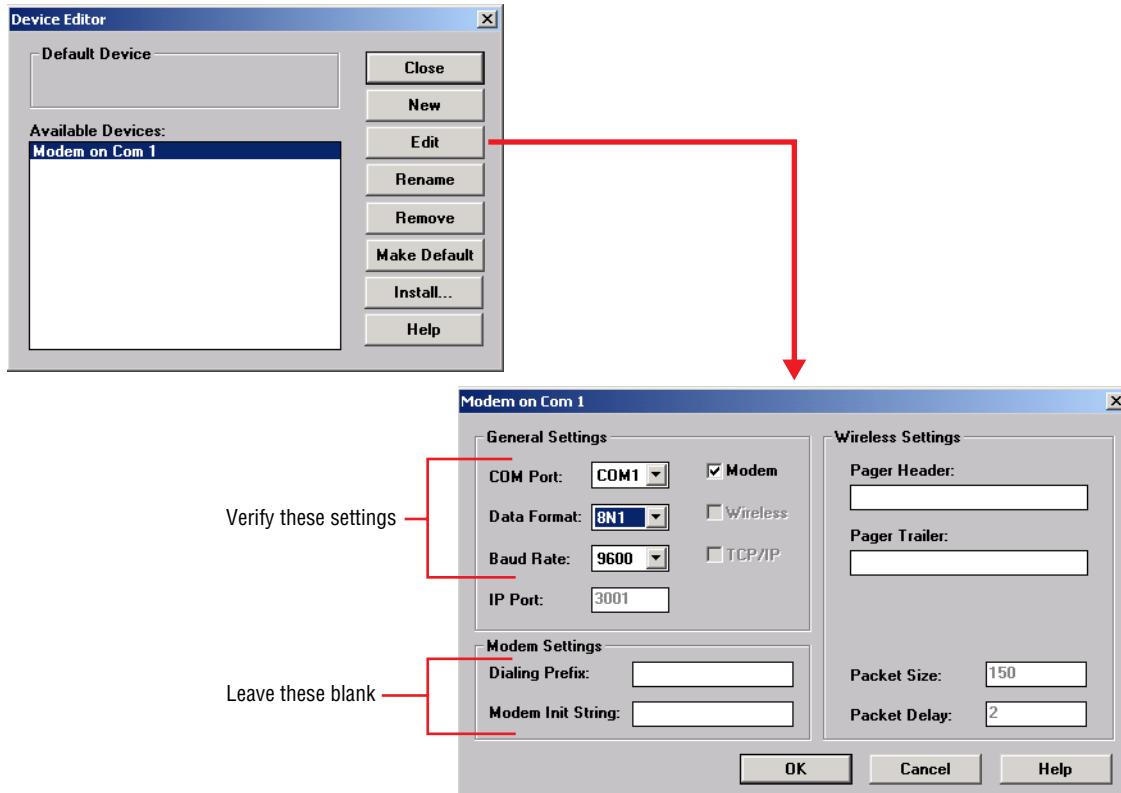


DEVICE SETUP FOR A MODEM CONNECTION

- In the AlphaNET software, open the *Site Manager* and select *Edit > Device > Install*. Choose one of the *Modem* devices and then click on OK:



2. Highlight the *Modem* device and click on *Edit*. Make sure your settings match those shown below. Then click OK and go to “Site setup for a Modem connection” on page 57.



Create a Site

In AlphaNET software, a Site must be created in order to send messages to a sign.

SITE SETUP FOR A WIRED OR WIRELESS CONNECTION

Select *Alpha 2.0* for AlphaEclipse™ signs

Select a wired *Connect Device*

When this is checked, messages sent from the *Message Editor* will be sent to the signs on this Site.

SITE SETUP FOR A MODEM CONNECTION

Select *Alpha 2.0* for AlphaEclipse™ signs

Select a modem *Connect Device*

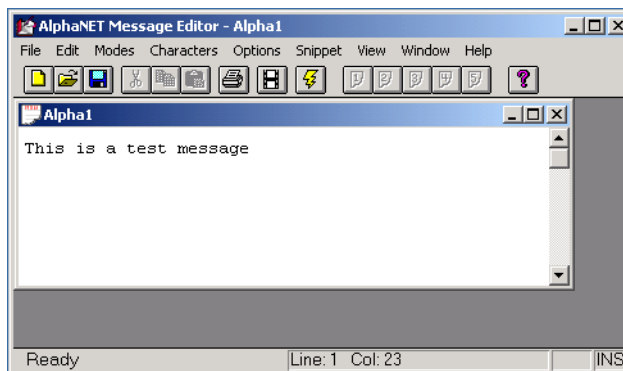
Telephone number of the modem inside an AlphaEclipse™ sign.

When this is checked, messages sent from the *Message Editor* will be sent to the signs on this Site.

Create and send messages

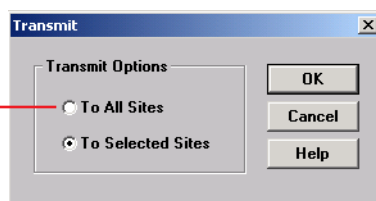
After the appropriate Device and Site has been created for your sign, send a test message to the sign:

1. In the *Message Editor*, select *File > New*. Then type a message:



2. Send your message to the sign by selecting *File > Transmit*.
3. When the *Transmit* window appears, choose *To Selected Signs* and click *OK*:

If your messages does NOT appear on the sign, then send the message again, but select *To All Sites* this time.



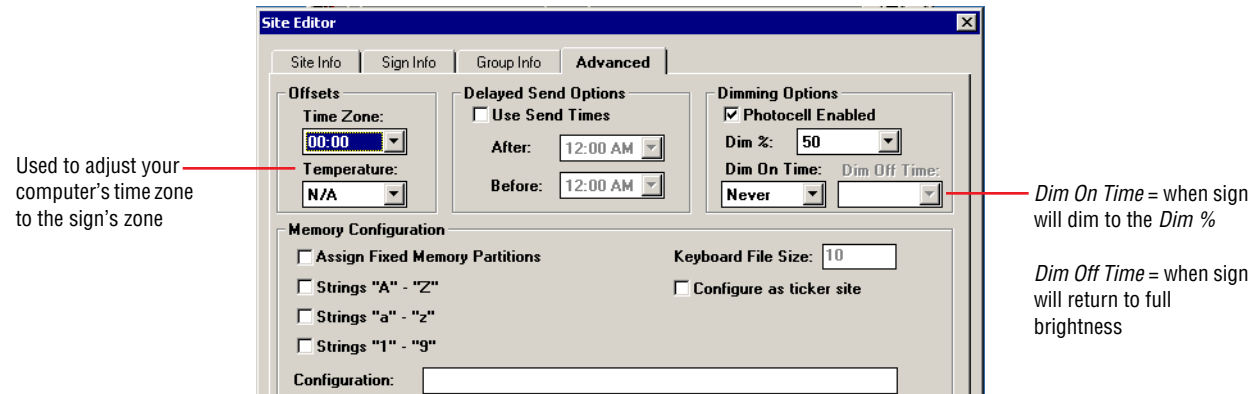
Setting the time and date on a sign

Whenever a message is sent to a sign, the sign's clock is automatically updated to the time on the computer that send the message.

If your computer is on a different time zone that your sign, the time zone can be adjusted in the *Site Editor* by selecting the *Advanced* tab (see the **AlphaNET™ version 2 User Manual**).

Setting the dimming time for a sign

An AlphaEclipse™ sign has a light-sensitive photo cell which dims the LED display to 50% at dusk (or darkness) and then returns the display to 100% brightness at dawn (see the **AlphaNET™ version 2 User Manual**).



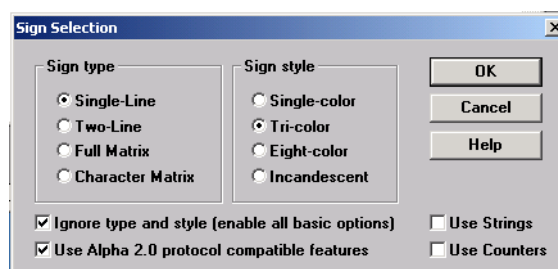
Setting message timing

Some municipalities have rules on the length of time an outdoor sign can display a message or how frequently messages may be updated or altered.

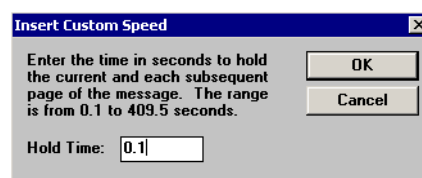
Message scheduling can be set using AlphaNET software:

Setting the length of time to display a message

1. In the *Message Editor*, open the message that will have its display time set.
2. Select *Edit > Sign Select*. Make sure that *Alpha 2.0 protocol compatible features* is checked. If not, check it on:



3. Then select *Options > Speed > Custom*:



Setting the day and time to display a message

1. In the *Site Manager*, add the message you want to display on a Site by choosing *Message > Add*.
2. Highlight the message and select *Message > Schedule*.
3. Set the start day and stop day and associated times.

6 — Maintenance

Every 6 months the following periodic maintenance should be performed:

With the sign's door closed

- Clean the polycarbonate lens on the sign's door. Use Northwoods cleaner and a soft paper towel, like Kleenex Premium Brand 3478.
- Verify that the sign mounting structure is secure.
- Verify that the main case bolts are all secure.
- Verify that the sign's door seals are tight.
- Make sure that sign's fresh air intakes are not clogged with any debris. See Figure 13, "Mounting an AlphaEclipse™ 2500/2600 sign," on page 44.

With the sign's door opened

- Verify that the exhaust fans operate. See "Testing the exhaust fans" on page 51.
- Clean out any foreign material from the inside of the sign.
- Whenever the sign is opened, a thorough examination should be made to insure that water has not penetrated the sign. Small leaks that occur in the sign can be sealed with 3M Scotch-Seal Polyurethane adhesive Sealant 540 black.

7 — Appendix

AlphaEclipse™ 2500/2600 series sign options

Temperature probe option

MOUNTING GUIDELINES

- A good place to locate the temperature probe is underneath the eaves of a protected overhang.
- A location on the north side of a building or other large structure will afford protection from the afternoon sun.
- Shield the probe from the effect of the direct sun, reflected heat, or any nearby sources of heat, such as chimneys, vents, or HVAC ducts.
- A light-colored background is preferable to a dark-colored mounting background.
- Choose a location where air movement is not restricted by nearby walls or other obstructions.
- Mount the temperature probe housing so that convection currents, or rising hot air flows, are not blocked by the mounting plates.
- A location at least 6 feet off the ground is recommended.
- A location above vegetation is preferable to a location above asphalt or blacktop.
- There must not be any strain on the cable. Compare the available cable length with the distance from the proposed mounting site to the 5-pin connector on the Controller board.

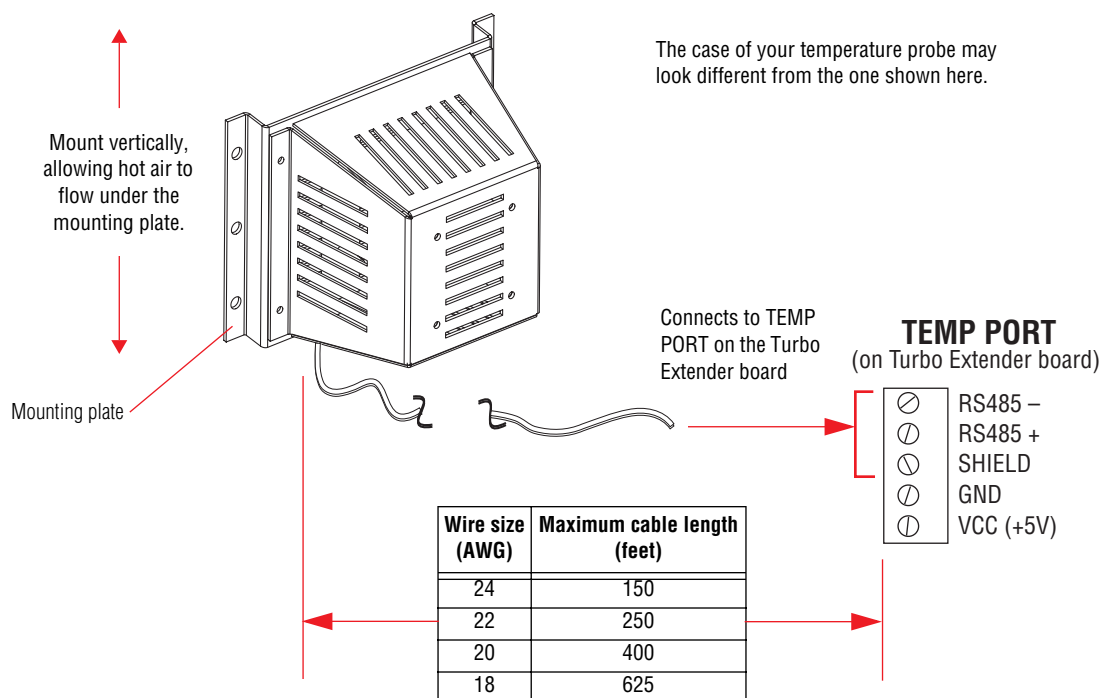
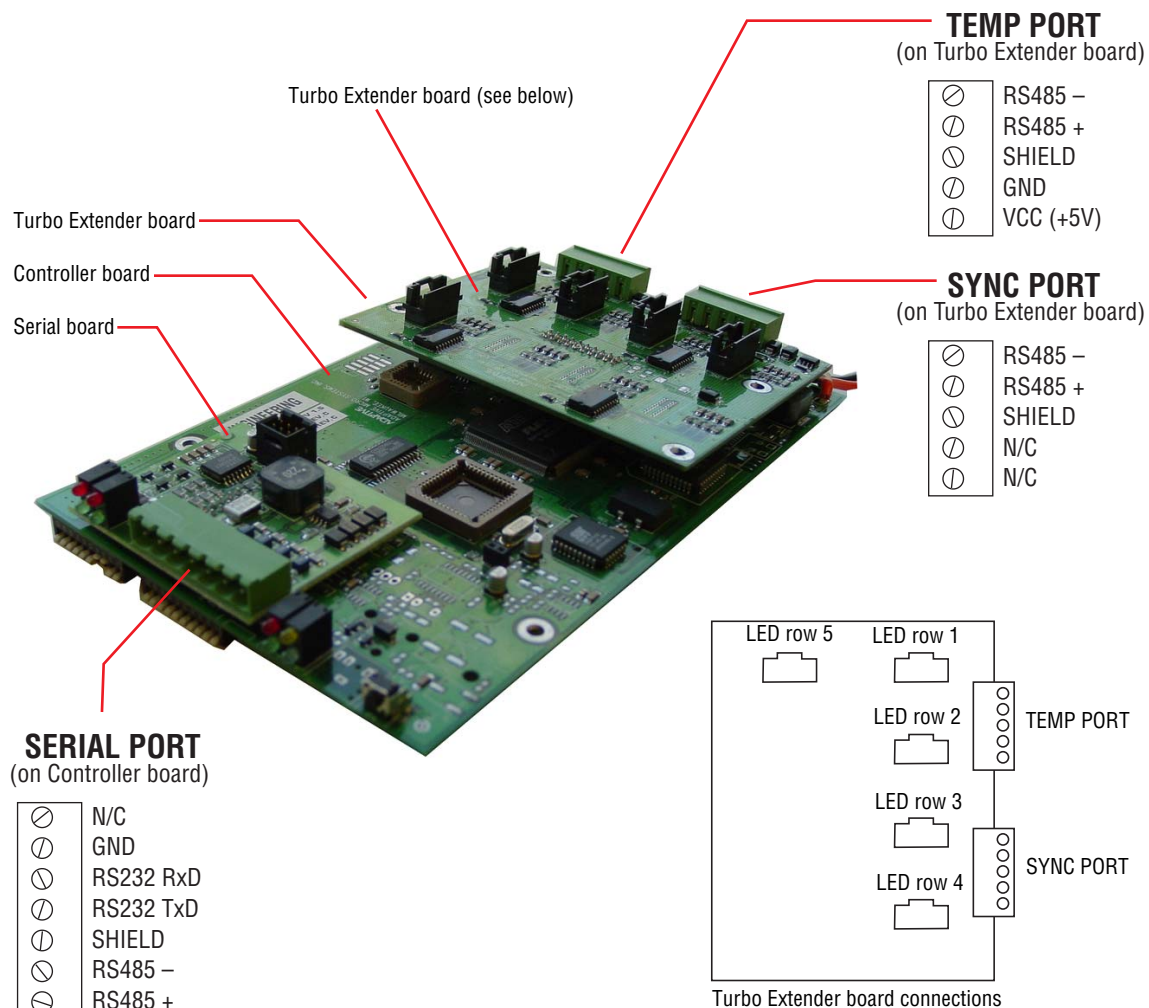


Figure 22: Temperature probe

INSTALLATION

1. Run the temperature probe cable into the sign through the signal wire conduit opening. See Table 4, "Inside view of an AlphaEclipse™ sign," on page 11.
2. Connect the temperature probe cable to the Controller board:

**Figure 23: Controller board**

3. Choose a mounting location based on "Mounting guidelines" on page 62.
4. Mount the temperature probe vertically using the mounting plate on each side. The temperature probe can be mounted on either a flat or a curved surface. Holes are provided in each mounting plate for fasteners.

Simultaneous messaging option

The simultaneous messaging option is also referred to as:

- synchronized messaging
- Master/Slave network

This option allows the same message to appear on two or more signs (up to 16) at the same time. For more information, see “Master/Slave sign-to-sign connection methods” on page 32.

Modem option

This option allows messages to be sent from a computer that has a transmitting modem to a sign that has a receiving modem installed. Each modem must be attached to its own phone line.

NOTE: The modem option only includes the installation of a receiving modem in a sign. The purchase and installation of the transmitting modem is the responsibility of the sign buyer.

The US Robotics 56K modem is used as the receiving modem. This brand is also recommended as the transmitting modem which would be attached to the computer sending message to a sign.



Figure 24: US Robotics 56K modem

RECEIVING MODEM

The receiving modem is installed inside a sign at the factory. For more information, see “Modem computer-to-sign connection” on page 21.

- Receiving modem DIP switch settings

The eight DIP switches on the US Robotics receiving modem are set as follows:

							
1	2	3	4	5	6	7	8
On	Off	On	Off	Off	Off	Off	On
Modem ignores DTR	Verbal (word) result codes	Display result codes	Echo offline commands	Auto answer on	Carrier detect on	Load user-defined configuration from nonvolatile memory (NVRAM)	Smart mode (recognize AT command set)

- Receiving modem internal configuration

The following AT command is sent to the modem with a program like HyperTerminal:

					
Disables flow control	Modem ignores RTS	Fixed serial port rate	Connection speed = 9600 baud	Loads Profile 0 into NVRAM when modem is powered on.	Writes this current setup to Profile 0 in nonvolatile memory (NVRAM)

TRANSMITTING MODEM

The US Robotics 56K modem is recommended for use as the transmitting modem. This modem does not require any special setup for sending messages to a sign.

Wireless transceiver option

NOTE: Early AlphaEclipse™ signs that had this option used a transceiver manufactured by Zeus. The following information applies to current signs which are equipped with the Locus OS2400-232 transceiver.



Figure 25: Locus OS2400-232 transceiver

For this option, one wireless transceiver (the “master”) is connected to a computer and sends messages to another transceiver (the “remote”) inside a sign. Both transceivers require antennas and both are programmed at the factory.

TRANSCIVER SETUP

NOTE: This information is based on Adaptive document number OTI00313A.

NOTE: For more information about the Locus OS2400-232, see the product manual **OS2400 Radio Modem User’s Manual** or visit the company’s web site: <http://www.overairsolutions.com>.

Using the OverAir Solutions software from Locus, the following parameters were set for the master and the remote transceivers:

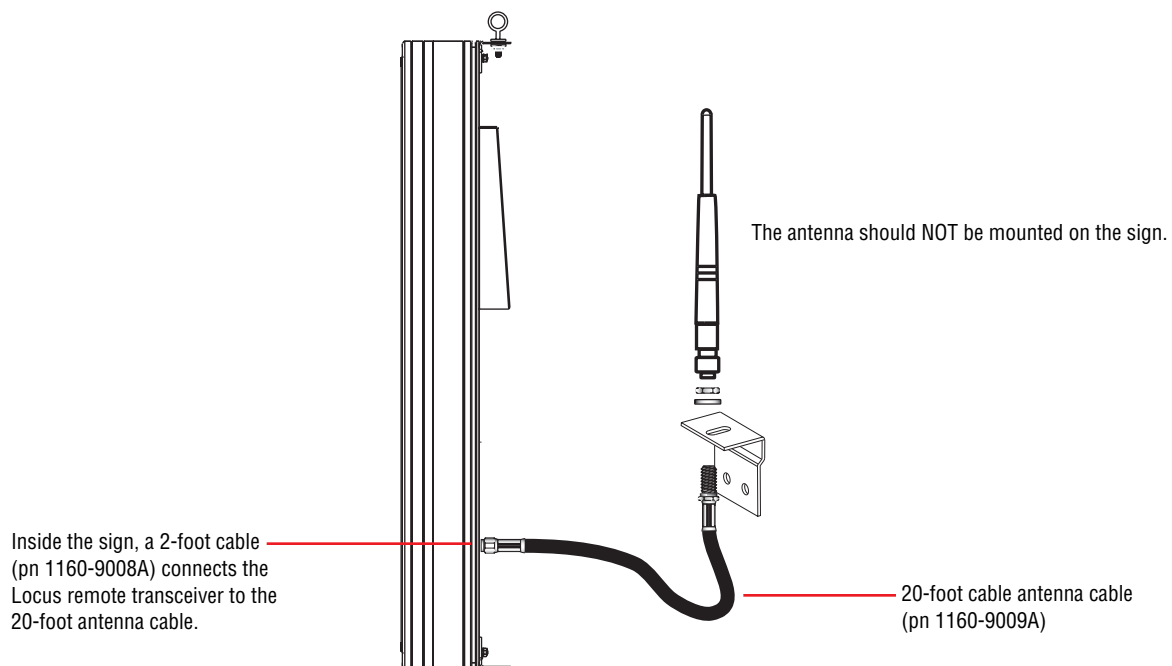
Parameter	Master transceiver (connected to computer)	Remote transceiver (installed inside sign)
Network Name	Network 1	
Network Type	Point to point	
Network Channel	1	
Radio Name	Master	Receive
Baud Rate	9600	9600
Parity	None	None
Data Bits	8	8
Stop Bits	1	1
Handshaking	None	None
Transmit Power	Max	Max

ANTENNA INSTALLATION

Follow these guidelines for mounting the remote transceiver antenna:

- Install the antenna and bracket on a support structure other than the sign or the sign's mounting brackets. Do NOT drill a hole in the sign enclosure.
- Install the antenna in a location that will allow optimum line-of-sight transmission and reception of signals between the sending transceiver and the antenna. Do not install the antenna so that the sign is between the sending transceiver and the receiving antenna.
- Install the antenna in an unobstructed area, keeping adequate clearance from any objects that could block the signal.
- Install the antenna in a more elevated location than the sign, and, if possible, keep it vertical.

Mount the sign as shown:



Technical specifications

AlphaEclipse™ 2500 sign

Table 9: Technical specifications for AlphaEclipse™ 2500 sign

Lines	LED Rows	LED Columns	Rated Input Current (amperes)		LED boards	Power supplies	Dimensions			Weight (pounds)
			at 120 VAC ¹	at 240 VAC			Height (inches)	Width (inches)	Depth (inches)	
1	16	96	1.55	0.78	3	1	See Figure 14 on page 45			
	16	128	2.10	1.05	4	2				
	16	160	2.56	1.28	5	2				
	16	192	3.11	1.55	6	2				
2	32	96	3.08	1.54	6	2				
	32	128	4.16	2.08	8	3				
	32	160	5.07	2.54	10	4				
	32	192	6.15	3.08	12	4				
3	48	96	4.55	2.27	9	3				
	48	128	6.14	3.7	12	4				
	48	160	7.51	3.75	15	5				
	48	192	9.10	4.55	18	6				
4	64	96	6.07	3.03	12	4				
	64	128	8.19	4.09	16	6				
	64	160	10.02	5.01	20	7				
	64	192	12.14	6.07	24	8				
5	80	96	7.44	3.72	15	5				
	80	128	10.02	5.01	20	7				
	80	160	12.30	6.15	25	9				
	80	192	14.88	7.44	30	10				

AlphaEclipse™ 2600 sign**Table 10: Technical specifications for AlphaEclipse™ 2600 sign**

Lines	LED Rows	LED Columns	Rated Input Current (amperes)		LED boards	Power supplies	Dimensions			Weight (pounds)
			at 120 VAC ¹	at 240 VAC			Height (inches)	Width (inches)	Depth (inches)	
1	16	96	1.74	0.87	3	1	See Figure 14 on page 45			
	16	128	2.35	1.17	4	2				
	16	160	2.87	1.43	5	2				
	16	192	3.48	1.74	6	2				
2	32	96	3.44	1.72	6	2				
	32	128	4.64	2.32	8	3				
	32	160	5.68	2.84	10	4				
	32	192	6.88	3.44	12	4				
3	48	96	5.10	2.55	9	3				
	48	128	6.87	3.43	12	4				
	48	160	8.42	4.21	15	5				
	48	192	10.19	5.10	18	6				
4	64	96	6.80	3.40	12	4				
	64	128	9.16	4.58	16	6				
	64	160	11.24	5.62	20	7				
	64	192	13.60	6.80	24	8				
5	80	96	8.35	4.18	15	5				
	80	128	11.24	5.62	20	7				
	80	160	13.83	6.91	25	9				
	80	192	16.71	8.35	30	10				

DIP switch settings

DIP switches are used to set various sign parameters. DIP switches are located on the Controller board: Bank 1, Bank 2, and Bank 3.

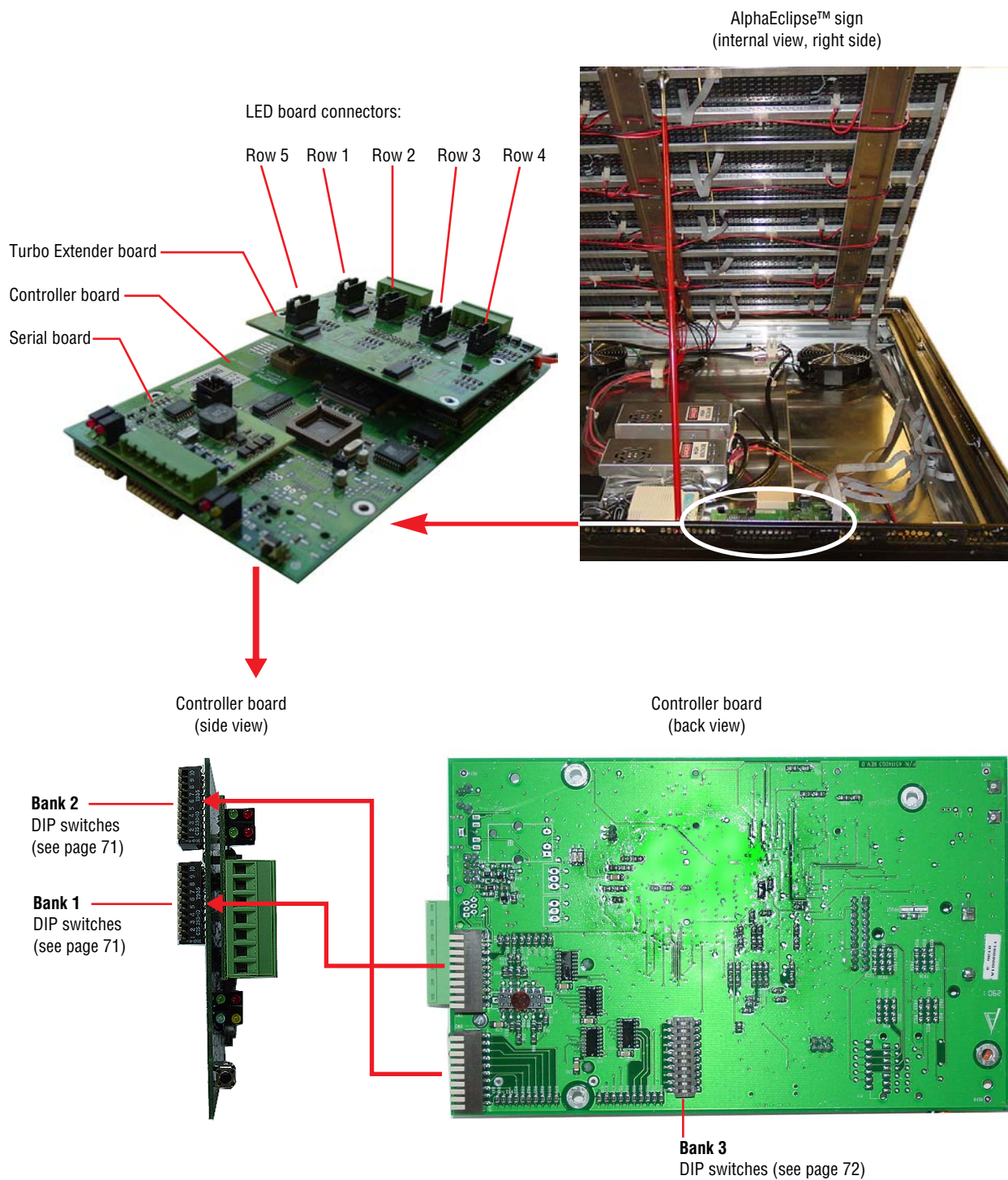
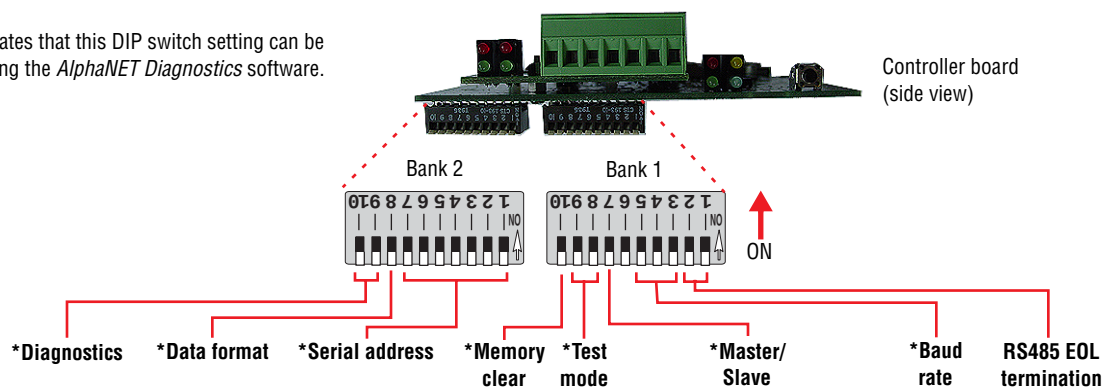


Figure 26: DIP switch locations

Sign operation settings (Bank 1 and Bank 2 DIP switches)

* indicates that this DIP switch setting can be set using the *AlphaNET Diagnostics* software.



Bank 2 DIP switches

	10	9	Description
Diagnostics	Off	Off	Normal messaging (default)
	Off	On	Goes through several test patterns to test for unlit LEDs and other irregularities
	On	Off	All LEDs are lit to test for uniform LED display
	On	On	Software override — When enabled, prevents setting DIP switches from software, and the sign will operate using the current DIP switch settings. <i>DIP switches 9 and 8 on Bank 1 must also be both on.</i>

	8	Description
Data format	Off	8N1 — 8 data bits, No parity, 1 stop bit (default)
	On	7E2 — 7 data bits, Even parity, 2 stop bits

	7 (MSB)	6	5	4	3	2	1 (LSB)	Address	
								Dec	Hex
Serial address (address 0 = default)	Off	Off	Off	Off	Off	Off	Off	0	00
	Off	Off	Off	Off	Off	Off	On	1	01
	Off	Off	Off	Off	Off	On	Off	2	02
	Off	Off	Off	Off	Off	On	On	3	03
	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.
	On	On	On	On	On	Off	On	125	7D
	On	On	On	On	On	On	Off	126	7E
	On	On	On	On	On	On	On	127	7F

Bank 1 DIP switches

	10	Description
Memory Clear	Off	Do NOT clear memory (default)
	On	Clear memory on powerup

	9	8	Description
Test Mode	Off	Off	Normal mode (default)
	On	On	Production test mode
	On	Off	Normal mode
	On	On	Software override — When enabled, prevents setting DIP switches from software, and the sign will operate using the current DIP switch settings. <i>DIP switches 10 and 9 on Bank 2 must also be both on.</i>

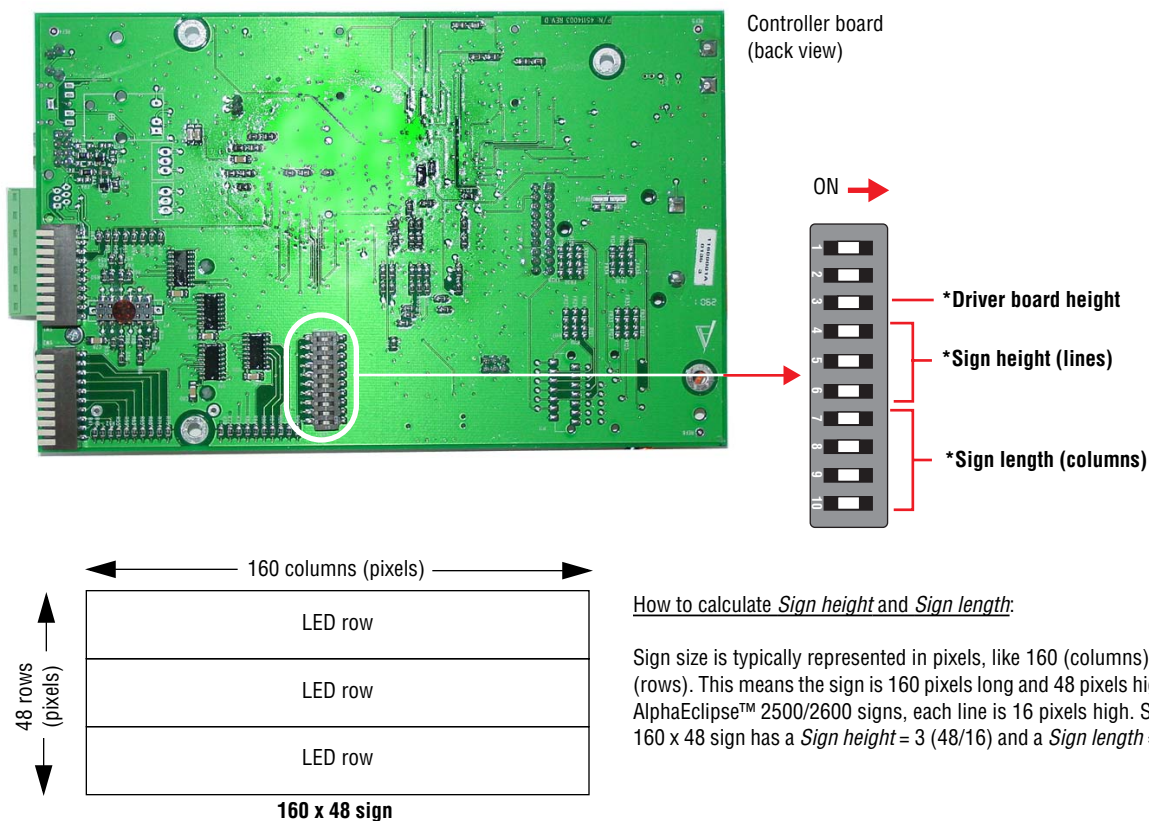
	7	Description (see page 23)
Master/Slave	Off	Master mode (default)
	On	Slave mode

	5	4	3	Description
Baud rate	Off	Off	Off	Autobaud (see NOTE below)
	Off	Off	On	1200
	Off	On	Off	2400
	Off	On	On	4800
	On	Off	Off	9600
	On	Off	On	19200
	On	On	Off	38400
	On	On	On	Autobaud (see NOTE below)
NOTE: When Autobaud is on, the sign will automatically try to set itself to the baud rate and data format (8N1 or 7E2) of the transmitting modem.				

	2	1	Description (see page 41)
RS485 termination	Off	Off	Termination off (default)
	On	On	Termination on

Sign size settings (Bank 3 DIP switches)

* indicates that this DIP switch setting can be set using the *AlphaNET Diagnostics* software.

**Bank 3 DIP switches**

Sign length (columns)				
10	9	8	7	Description
Off	Off	Off	Off	64 columns (default)
Off	Off	Off	On	16 columns
Off	Off	On	Off	32 columns
Off	Off	On	On	48 columns
Off	On	Off	Off	64 columns
Off	On	Off	On	80 columns
Off	On	On	Off	96 columns
Off	On	On	On	112 columns
On	Off	Off	Off	128 columns
On	Off	Off	On	144 columns
On	Off	On	Off	160 columns
On	Off	On	On	176 columns
On	On	Off	Off	192 columns
On	On	Off	On	208 columns
On	On	On	Off	224 columns
On	On	On	On	240 columns

Sign height (lines)			
6	5	4	Description
Off	Off	Off	1 line (default)
Off	Off	On	2 lines
Off	On	Off	3 lines
Off	On	On	4 lines
On	Off	Off	5 lines
On	Off	On	6 lines
On	On	Off	7 lines
On	On	On	8 lines

Not valid for 2500/2600 signs

Driver board height	
3	Description
Off	8-row high (default)
On	16-row high — use for a 2500/2600 sign

Abbreviations used in this manual

BLK — black

BLU — blue

CFM — Cubic Feet per Minute

DEC — decimal

DIP — Dual Inline

EOL — End-Of-Line

ESD — Electro-Static Discharge. Commonly called static electricity.

GRN — green

HEX — Hexadecimal. Base 16 numbering system (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C D, E, F).

HVAC — Heating Ventilation Air Conditioning

IR — infrared

LSB — Least Significant Bit

max — maximum

MSB — Most Significant Bit

ORN — orange

pixel — in a 2500/2600 sign, 1 pixel = 1 LED lamp

pn — part number

VAC — Voltage Alternating Current

VDC — Voltage Direct Current

WHT — white

